

# **Influence of Quarrying on Student Academic Performance in Kenya: A Study across Public Secondary Schools in Rachuonyo North Sub County.**

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## **Abstract**

Students are examined globally at the end of each level of learning cycle. The purpose of examinations is to help learners identify their careers based on performance. Students' performance in Kenya and by extension in Rachuonyo North Sub County is still weak for instance in 2022, only 173,345 out of 421,748 scored C+ and above. This means that only 41.09% scored quality grades required for choosing competitive careers while 58.91% scored weak grades that cannot enable them to join competitive careers. The factors perceived to be responsible for weak performance are socio-economic, such as high student –teacher ratio; quarrying, fishing, culture among others. The objective of the study was to determine the influence of quarrying activities on academic performance of public secondary school students in Rachuonyo North Sub County. The research design used was descriptive survey. The target population was 1720 form four students, 50 class teachers, 25 teacher counselors, 30 teenage mothers, 25 principals, 10 quarry operators, 3 beach managers and 16 chiefs. The sample size of 325 form four students, 50 class teachers, 25 principals, 25 teacher counselors, 10 quarry operators, 3 beach managers and 16 chiefs totaling to a sample of 484 was used. Sampling procedures included simple random sampling for students and purposive sampling for teacher counselors, class teachers, beach managers, quarry operators and chiefs while teenage mothers were sampled through snowballing. The instruments for data collection were questionnaires and interview schedules. Validity of the research instruments was determined by experts in the faculty of education, while reliability of the instruments was determined using Cronbach alpha. Cronbach alpha coefficient were 0.8 for class teachers and 0.78 for students meaning that the reliability was high. Qualitative data was transcribed and analyzed for content in emergent themes and sub themes. Quantitative data was analyzed descriptively by use of counts, means and inferential t-test. The findings indicated that quarrying activities influenced students' academic performance with an overall mean rating of 3.66. The findings will benefit highly stakeholders in improving academic performance of students in remote areas, quarrying areas and along the lake basin. The findings will also inform policy formulation and implementation with regard to students' performance in quarry areas.

**Keywords:** *Influence, Quarrying, Student Academic Performance, Kenya: Public Secondary Schools in Rachuonyo North Sub County.*

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## **I. Introduction**

The purpose of examinations in any country is to help learners identify their careers based on their respective performances. In this regard, students' performance is vital and all stakeholders take academic

performance seriously. Students performance in Kenya and specifically in Rachuonyo North Sub County was poor for most learners; for instance in 2022, only 173,345 out of 421,748 scored C+ and above. This means that only 41.09% scored quality grades required for choosing competitive careers in various institutions of higher learning. Students’ performance is influenced by socio-economic factors such as learners’ attitudes, infrastructure, teachers’ staffing and teaching and learning resources, fishing, quarrying among others. Yet the extent to which these factors influence academic performance in Rachuonyo North Sub-County was not known. It was therefore important to establish the influence of quarrying on the students’ academic performance in Rachuonyo North Sub-County. This is because quarrying is a major economic activity in the area that was observed to affect secondary school going children.

Worldwide, the influence of socio-economic factors in academic performance has been of interest to scholars. Richardson (2012) focused on academic achievement gap in US. The study found out, “Both in-school factors and home/community factors affect the academic achievement of students. The overall ranking of students performance indicated that, whites scored average of 17.1%, blacks 4 %, Hispanic 4.3%, Asians 15.6%, Native American 1.6% while in an international educational mathematics scores were; Asian-American scored a mean of 582 out of 600, European American 550, Hispanic American 504, African American 482.” However, the influence of socio-economic factors like quarrying on academic performance was not appoint of focus for the study. The current study therefore investigated the influence of quarrying on students’ academic performance in secondary schools using Rachuonyo North Sub County as the site for the study.

Nwosu (2022) examined Effect of Engagement in Stone Mining and Quarry Activities on Children of School Age Education in Nigeria. Survey method of research was adopted with an oral interview as a major instrument for data collection. The study confirmed significant incidents of child labour in Nigeria. It further found five major implications of engaging children of school age in mining/quarrying activities which include absenteeism, poor academic performance, high rate of repetition, high dropout rate, reduced children productivity, and future earnings' capacity. The study established that orphanage, poverty, social norms and wrong perception, peer influence, financing of educational and personal needs, and lack of adequate enforcement by the government agencies were the major causes of poor academic performance. The current research sought to determine the influence of quarrying on students’ academic performance in secondary schools in Rachuonyo North Sub-County.

Marigu and Maitho (2019) on the other hand studied Factors Influencing Students Performance in KCSE in Imenti Central Sub County, Meru County, Kenya. Stratified random sampling technique was used in selecting the respondents. The sample consisted of 15 principals, 10 deputy principals, 15 Head of Science Department, 5 guidance and counseling teachers and 150 form four students. Data was collected using questionnaires and interview schedules and was analyzed using descriptive and inferential statistics. The SPSS was used to analyze the data. It was established that absenteeism and poor time management always occurred. However, factors like quarrying were not examined and it is for this reason the researcher set out to carry out the study in Rachuonyo North sub-County to fill in the gap. Rachuonyo North became a point of focus because of the poor performance in KCSE as indicated in Table 1.

Table 1 indicates mean grades for KCSE performances for the last five years.

**Table 1: Kenya Certificate of Secondary Education performance in Homa-Bay Sub-Counties for the years 2018 -2022**

Sub-County	KCSE Mean Score Per Year					Overall Mean
	2018	2019	2020	2021	2022	
<b>Rachuonyo North</b>	<b>3.9456</b>	<b>4.1176</b>	<b>4.1591</b>	<b>3.9556</b>	<b>3.8170</b>	<b>3.9990</b>
Rachuonyo East	3.9640	4.1370	4.5013	4.2330	4.2792	4.1636
Rachuonyo South	4.0012	4.4432	4.0189	3.9553	4.7810	4.2400
Rangwe	3.7591	3.9878	4.0677	4.1321	4.0870	4.0067
Homa-bay	4.4860	4.7904	5.5983	3.5170	4.3370	4.5457
Ndhiwa	4.1014	4.2002	4.0113	3.6981	3.9987	4.0019
Suba South	4.0060	4.3143	4.1013	4.2349	4.0071	4.1327
Mbita	4.1004	4.0007	4.1231	4.2165	4.3236	4.1541

**Source: Report from Homa-bay County Education Offices, 2023**

Table 1 indicates KCSE performance in Rachuonyo North, Rachuonyo East, Rachuonyo South, Rangwe and Homa-Bay Sub-Counties. Comparably, the mean pass mark for direct entry into any Kenyan University stands at 7.0(C+). This implies that the performance in Rachuonyo North Sub-County was below average. Socio economic factors like quarrying were profound in Rachuonyo-North as compared to other sub-

counties within Homa-bay-County as reported from Homa-Bay County Education offices (2023). Comparing the mean KCSE grades, Rachuonyo North had the lowest mean grade. The researcher therefore sought to determine the influence of quarrying had statistical significant influence on academic performance.

### **Synthesis of Literature on Influence Of Quarrying Activities on Academic Performance**

A report by National Guidelines for Environmental Protection and Rehabilitation Plan in Nigeria (2011) presents the assessment of the environmental and socio-economic components of granite quarrying operations and how it affects the productivity of teaching and learning process in Bwari area council of the FCT in Nigeria. The assessment examined the potential positive and negative impacts of granite quarrying operations on academic performance. The findings were that quarrying activities affected academic performance. However, the study did not focus on the quarrying activities in Rachuonyo North Sub-County which the current study attempted to establish.

Debrah et al (2021) in Ghana studied the effect of stone quarry on basic education: the case of Paanor electoral area in South Municipality of Ghana. A descriptive survey was used for this study. The population selected involved parents, teachers and students in the community. The respondents were chosen using a simple random sampling method. The study included 100 students, 30 teachers and 20 parents. The primary method for data collection was questionnaires. Three sets of questions were used, one for students and the other two for teachers and parents. The findings indicated significant negative effect of quarrying on academic performance. However, the present study incorporated Quarry Operators, Chiefs, Teacher Counselors and Principals, a gap the present study attempted to fill.

Omale (2013) in Nigeria similarly highlighted effects of quarrying activities on the academic performance of students. Of the sample size, only 4% of the respondents did not agree that quarrying activities had an impact on low performance of student in the study area. However, majority of the respondents at 96% were of the opinion that quarrying activities contributes to low student performance in the study area. The findings stated “Quarrying is a threat to the development of education in Nigeria.” However, the study was not particular to Rachuonyo North Sub-County. The present study therefore was carried out in Rachuonyo North Sub-County to address the literature gap.in order to establish the influence of academic performance in Rachuonyo North Sub County.

Ghana was facing junior and senior high school drop-out, irrespective of the free compulsory education policy, which benefits children from the basic up to senior high level. “Within the different districts of Ghana, various governments have paid great attention to growing school registration, attendance and academic results,” (Adu- Gyamfi, 2014). Education helps countries to have sustainable development. Countries like Japan, Norway, America and Germany are highly developed as compared to developing countries like Ghana and Nigeria because they have less illiteracy rate in their countries. Education has helped them to develop technologies and skills to meet the pressing needs of their citizens. “In Ghana, everyone has access to free education but only 80% of children of school-going age are in school with the rest of 20% busily engaged in other jobs such as quarrying and illegal mining,” (Hilson, 2010). Ghana Education Services have however made a great deal of progress in infrastructure provision for schools such as libraries, computer laboratories and recreational facilities (football pitches) and distribution of free School uniforms to help reverse the situation but the problem persists. For this reason, the researcher sought to determine the influence of quarrying on academic performance of students in Rachuonyo North Sub-County, Kenya.

A study by Gyemfi (2014) stated that children of school-going age are attracted by the quarry activities either as a means of offering a helping hand, enriching themselves or as a kind of training to be able to take over from their parents when they retire. Out of 30,000-50,000 illegal mines in Ghana, which includes quarry work, it is estimated that 10,000 are children engaged in this sector, which is unsafe and put their health at risk besides poor academic performance (KoCDA, 2010). Despite the important role that local quarry operations play in the district of Paanor and the country, it is assumed that school attendance and academic performance would have a regressive effect. Therefore, looking into the effects of local quarry on school performance in basic school had become a vital concern. The study obtained primary data collected through the administration of questionnaires in the community. A total of 150 samples were used. The findings were that most of the local people in the community were engaged in quarry work. People from various walks of life work in this industry, such as students from the basic, senior and tertiary level and other self-employed people in the area.” With that, schooling is long forgotten. Unlike the reviewed literature that utilized questionnaires as the sole data collection instrument, the present study used both questionnaire and interview schedule to fill the knowledge gap.

In Kenya, Njuguna (2021) sought to establish the socio-economic factors that influence academic performance in public primary schools in Murang'a South Sub County. The study adopted a descriptive survey design utilizing both quantitative and qualitative techniques. The study involved a sample of 21 deputy head teachers, 105 teachers and 210 pupils making a total of 336 participants. Data was collected using a pupils' questionnaire, focus group discussions for the deputy head teachers and teachers and an observation checklist.

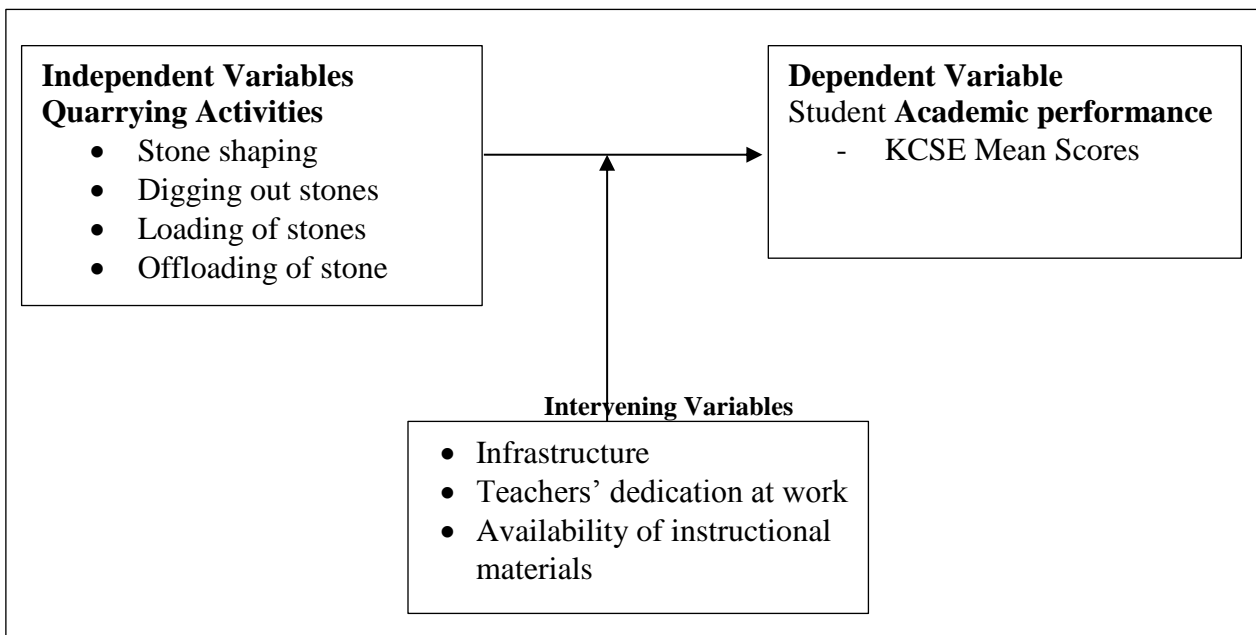
Data was analyzed using descriptive statistics: quantitative data was analyzed using Statistical Package for Social Sciences version 17 for windows. The socio-economic factors that influence academic performance included low parental/guardian education level; low income and pre-occupation with quarrying work. The results indicated large number of pupils could not carry out private studies at home due to low earnings some families lived in overcrowded and/or poorly lit rooms around quarries In Rachuonyo North Sub-county in particular, the researcher was concerned with the influence of quarrying activities on student academic performance. Moreover, all stake holders with regard to quarrying activities were captured to fill in knowledge gap.

**Conceptual Frame work**

The conceptual framework was based on Walberg’s Theory of Academic Achievement (Walberg & Reynold, 1992). The theory postulates that psychological characteristics of individual students and their immediate psychological environments influence educational outcome. Walberg’s theory tackles the influences of environmental factors on learning and hence academic performances. The theory reorganizes not only the individual factors but also the complexity of human learning by converging on the least number of factors that consistently predicts students’ learning outcomes. The theory hypothesizes that individual psychological attributes as well as proximate environmental influence on cognitive, attitudinal and behavioral outcomes of education. The fundamental objectives of the theory are to determine what factors influence students’ academic performance. The theory was therefore relevant and adapted for the present study since there are factors influencing students’ academic performance such as quarrying ON academic performance.

Researcher may opine that the research problem cannot meaningfully be researched in reference to only one theory, or concepts like quarrying within conflict theory. In such cases, the researcher may have to synthesize the existing views in the literature concerning a given situation both theoretical and from empirical findings. The synthesis may be called a model or conceptual framework, which essentially represents an ‘integrated’ way of looking at the problem (Liehr & Smith, 1999). Such a model could then be used in place of a theoretical framework. Thus, for this reason, the conceptual framework helps the researcher to study the system of concepts, assumptions, expectations, beliefs, and theories that supports and informs research (Miles & Huberman, 1994; Robson, 2011). Miles and Huberman (1994) on the other hand sees a conceptual framework as a visual or written product, one that “explains, either graphically or in narrative form, the main things to be studied, the key factors, concepts, or variables and the presumed relationships amongst them.

Figure 1 shows a conceptual framework indicating the possible influence of quarrying activities on student academic performance.



**Figure 1: Influence of quarrying activities on student academic performance.**

Engagement of students in quarrying activities may lead to either good or poor student academic performance. However, other intervening factors like infrastructure, human resource, instructional materials and

availability of funds and administration of Continuous Assessment Tests may also influence academic performance.

**Research Objective**

To determine the influence of quarrying on student academic performance of secondary school students in Rachuonyo North Sub County.

**II. Research Methodology**

Research design used was descriptive survey. The target population was 1720 form four students, 50 class teachers, 25 teacher counselors, 30 teenage mothers, 25 principals, 10 quarry operators, 3 beach managers and 16 chiefs. The sample size of 325 form four students, 50 class teachers, 25 principals, 25 teacher counselors, 10 quarry operators, 3 beach managers and 16 chiefs totaling to a sample of 484 was used. Sampling procedures included simple random sampling for students and purposive sampling for teacher counselors, class teachers, beach managers, quarry operators and chiefs while teenage mothers were sampled through snowballing. The instruments for data collection were questionnaires and interview schedules. Validity of the research instruments was determined by experts in the Faculty of Education, while reliability of the instruments was determined using Cronbach alpha. Qualitative data was transcribed and analyzed for content in emergent themes and sub themes. Quantitative data was analyzed descriptively into frequencies, percentages, means and further inferentially into t-test.

**III. Results**

**Demographic Characteristics of Respondents**

**Table 1  
Respondents by Gender**

Respondent Category	Male		Female	
	Frequency	Percentage	Frequency	Percentage
Form Four Students (2024)	157	56.5	121	43.5
Teenage Mothers	-	-	23	100
Principals	17	89.5	2	10.5
Class Teachers	15	51.7	14	48.3
Teacher Counsellors	15	71.4	6	28.6
Beach Managers	3	100	0	0
Quarry Operators	6	85.7	1	14.3
Chiefs	8	66.7	4	33.3
<b>Overall</b>	<b>221</b>	<b>56.4</b>	<b>171</b>	<b>43.6</b>

Source: Field data, 2024

Table 1 shows the number of respondents per category. Overall response by gender implied that males (56.4%) outperform their female counterparts (43.6%). From Table 1, all the stakeholders who are relevant to the study are represented.

**Table 2  
Student Respondents' by Age**

Age bracket	Form Four Students	
	Frequency	Percentage
Below 18 years	98	35.3
18 years and above	180	64.7
<b>Total</b>	<b>278</b>	<b>10%</b>

Source: Field data, 2024

Table 2 shows the age bracket of form four respondents. Percentage responses have also been highlighted. Considering the response by age in this study, majority of the student respondents were aged above 18 years (64.7%) with the students below the age of 18 years forming only 35.3%. Most of the respondents were mature explaining in their involvement in socio-economic activities. Therefore data obtained from them was trustworthy.

**Parental Occupations**

The respondent's parents' occupations were also determined just to highlight the types of occupations of the parents of form four students who participated in the study. The response is summarized in Table 3.

**Table 3**  
**Parental Occupations**

Parental Occupations	Frequency	Percentage
Jua Kali jobs (Quarry operators, fishermen, charcoal burners)	67	24.1
Artisans (Tailors, Drivers)	17	6.1
Micro Business	135	48.6
Profession (Teachers, doctors, accountants)	15	5.4
Peasant Farming	44	15.8
<b>Total</b>	<b>278</b>	<b>100%</b>

Source: Field data, 2024

Table 3 shows parental occupations. percentage responses have also been highlighted. Considering Parental Occupations in this study, parents who were engaged in Jua Kali jobs (24.1%), Artisans (6.1%), Micro business (48.6%), professional (5.4%) and Peasant Farming (15.8%). From this analysis majority of the parents were engaged in business while the least occupation being professional undertaking. The parental occupation necessitate the students to venture in socio-economic activities.

**Parental Income Brackets (monthly)**

The respondent's Parental Income was also determined just to highlight the average income of the parents of form four students. The response is summarized in Table 4.

**Table 4**  
**Parental Income Brackets (monthly)**

Parents	Ksh.1000-Ksh.10000		Ksh.10000 and above	
	Frequency	Percentage	Frequency	Percentage
Father	201	72.3%	77	27.7%
Mothers	195	70.1%	83	29.9%

Source: Field data, 2024

Table 4 shows the average monthly incomes of the respondent's parents. Percentage responses have also been highlighted. Considering the average income of the respondents' parents in this study, majority of the parents earn between (ksh.1000- ksh.10000) pm with minority earning above Ksh. 10,000

**Student Respondents' Pocket Money Given per Term**

The respondent's pocket money given per term was also determined. The response is summarized in Table 5.

**Table 5**  
**Student Respondents' Pocket Money Given per Term**

Pocket Money	Form four students' respondents	
	Frequency	Percentage
Ksh.100-Ksh.500	235	84.5%
Above Ksh. 500	43	15.5%

Source: Field data, 2024

Table 5 shows the Student Respondents' Pocket Money Given per Term. Percentage responses have also been highlighted. Considering the fact that the Student Respondents' Pocket Money Given per Term in this study is below Ksh. 500, student get to venture into socio-economic activities in order to get more pocket money.

**Research Objective**

To determine the influence of quarrying activities on student academic performance of secondary school students in Rachuonyo North Sub County.

**Table 6**  
**Influence of Quarrying activities on student Academic Performance**

Aspects of Quarrying Activities	RESP		RATINGS					NR	T	MR	OMR	t-test
			1	2	3	4	5					
Stone shaping	CT	F	0	0	1	14	14	0	29	4.45	3.38	t(290)=6.834, p=.000
								0.0	129			
	S	F	18	21	107	108	9	15	263	3.26		
								5.4	858			
		%	6.5	7.6	38.5	38.8	3.2		94.6			
Digging out stones	CT	F	0	0	0	15	14	0	29	4.48	3.67	t(289)=4.362, p=.000
								0.0	130			
	S	F	16	19	83	85	59	16	262	3.58		
								5.8	938			
		%	5.8	6.8	29.9	30.6	21.2		94.2			
Loading of stones	CT	F	0	0	0	6	23	0	29	4.79	3.63	t(288)=5.966, p=.000
								0.0	139			
	S	F	21	21	80	83	56	17	261	3.51		
								6.1	915			
		%	7.6	7.6	28.8	29.9	20.1		93.9			
Offloading of stones	CT	F	0	0	2	7	20	0	29	4.62	3.55	t(289)=5.103, p=.000
								0.0	134			
	S	F	26	26	80	68	62	16	262	3.44		
								5.8	900			
		%	9.4	9.4	28.8	24.5	22.3		94.2			
Transportation of stones	CT	F	0	2	11	11	4	1	28	3.61	3.23	t(285)=1.664, p=.097
								3.4	101			
	S	F	37	39	69	66	48	19	259	3.19		
								6.8	826			
		%	13.3	14.0	24.8	23.7	17.3		93.2			
Overall Rating	CT									<b>4.40</b>		
	S									<b>2.91</b>	<b>3.66</b>	t(290)=9.199, p=.000

Source: Field data, 2024

**Key:** S=Student, CT=Class Teachers,

NR=Nil Response, T=Total. MR=Mean Rating, OMR=Overall Mean Rating

**Interpretation of Mean Ratings; 1.00-1.44 No Influence (NI)**

1.45-2.44 Very Low Influence (VLI)

2.45-3.44 Low Influence (LI)

3.45-4.44 High Influence (HI)

4.45-5.00 Very High Influence (VHI)

Table 6 shows that quarrying activities had high influence on student’s academic performance as signified by Overall Mean Rating of 3.66. Further details determined the influence of quarrying activities on students’ academic performance where digging of stones has the highest overall mean rating of 3.67 (out of the possible mean of 5.00) followed by loading of stones 3.63, then offloading of stones 3.55, stone shaping 3.38, and lastly transportation of stones 3.23. In establishing how quarrying influences student’s academic performance, the overall mean rating of Class Teachers was 4.40 (out of the possible maximum of 5.00) which was higher than that of students 2.91. The two mean ratings are significantly different since the p values are less than .05

Given that stone shaping had a low influence with a mean rating of 3.38 definitely, this activity negatively influence academic performance. The influence of digging out stones on students’ academic performance was noted with a high overall mean rating of 3.67. It can be deduced that, the overall mean rating is high due to the fact that it is mostly done in hidden places, therefore students who would not wish to be

spotted by others feel safe as they carry out the activity.

Loading of stones on the other hand has an overall mean rating of 3.63. This implies a high influence of loading of stones on students' academic performance. Students find the activity appealing since it takes a shorter time to accomplish and the students involved in these activities want to hide and may not want to be seen. The influence of offloading of stones on students' academic performance was noted with a high overall mean rating of 3.55. The influence of transportation of stones on students' academic performance was also noted with a mean rating of 3.23 which implies low influence of transportation of stones on students' academic performance. In most cases the activity is performed by adults and mostly drivers. That is why most of the students are not actively engaged in transportation of stones. However, the qualitative findings confirm that, transportation of stones influences student's academic performance.

#### **IV. Discussion**

The teachers indicated that quarrying had high influence on academic performance while students rating indicated that quarrying had low influence on academic performance. Whereas the teachers' and students' ratings do not tally, qualitative results from the interview indicated that quarrying had a high influence on students' academic performance. The influence was noted to be negative corroborate by qualitative data. Thus one of the quarry operators whose performance was affected by activities in the quarry sites during his schooling asserted "When I sat my KCSE in the year 2022, I scored a mean grade of D+, and I believe that this was as a result of my involvement in the quarry sites activities at the expense of studying. Most of the time, I would not attend classes as I was busy looking for money. You know, activities at the quarry sites are very exhaustive; therefore it is not practically possible to attend classes afterwards."

From the expressions, the findings confirm that, quarrying negatively influences student's academic performance. Quarrying being a tiresome activity, students who involve in the activities get fatigued such that they are distracted from the class work and assignment thus reducing their attention in class. Therefore, when they sit for their exams, they do it just for the sake rather than for excellence.

Specifically with regard to stone shaping, during interview with the Teacher Counselors (TC), one teacher counselor said "Quarrying is the main activity that brings money here and students were born in it. Students and quarrying are inseparable. Students know and understand quarrying than anyone else. Students engage in quarrying activities like stone shaping during the day. They too join others in stone shaping sites during weekends like Saturdays and Sundays. You even wonder if they go to church! Quarrying affects their academic performance so much due to their divided attention. In some cases, students miss out for lessons especially when sent for school fees. During that time, they can even stay away for a whole week. Surely, they can't perform! (TC, 7) And one Principal stated: Students around this area engage in stone shaping activities very early in the morning, late in the evening and even weekends. This necessitates missing out for some classes hence influencing performance negatively. To some extent this can cause truancy. (Principal, 10). The assertion of TC7 and P10 imply that quarrying activities like stone shaping increase child labor in the area, poor academic performance and even school dropout.

During interview with Quarry Operators (QO), qualitative findings confirm that, digging out stones negatively influence student's academic performance as expressed by "in quarries, there are no age limits. The elderly, youths or even women engage alike. Some clear the sites, some dig out stones, while some move stones from parts of the quarry into the sites where shaping takes place while others cook and sell food to the operators. You see, everyone is busy making money here! Students get their pocket money, school fee and transport to school. With regard to performance, these students cannot perform well since they engage in many activities in the quarry sites which preoccupy their brains and therefore cannot do well in their academics."

The assertion imply that students seriously engage in digging out stones. This makes them tired such that they may not participate fully in school activities and specifically in class work. Generally this could cause poor performance.

From the qualitative data analyzed, the findings confirm that, loading of stones influence student's academic performance. During an interview with the Quarry Operators, QO6 said "In quarry, teenagers first clean up the sites, extract stones, shape the stones, arrange the stones then finally load them on to the tracks for transportation. That is how some of them get their upkeep allowances and even school fees! They are paid up to Ksh.250 depending on the time they start and stop and that is why most of them prefer starting earlier. Thus students prefer quarrying to attending school and therefore they are bound to lose a lot in terms of learning (QO, 6). The excerpt of QO6 imply that as students engage in quarrying activities for their livelihoods, they end up performing poorly in schools or even discontinue their education.

The qualitative results obtained from Chief (C4) indicates that offloading of stones negatively influences students' academic performance as was expressed by C4: "Students do engage in quarrying activities especially boys are residing around the quarries. Quarrying activities are many but for the youths, they are engaged in offloading and clearing the sites afterwards. In some cases, they are discouraged from coming to the



quarries during week days but they still find their ways in to those sites. These affect their school attendance thus lowering their performance. (C, 4). The expression of C4 imply that as students willingly engage in quarrying activities like stone offloading and cleaning of the quarry sites. They miss school at will and hence likely end up performing poorly.

During an interview with the Quarry Operators, QO10 had this to comment: “Students know exactly when the quarry vehicles approach the site. After loading the stones some of them jump on to the Lorries and move with them as they enjoy the ride.” (QO10). The sentiments of QO10 imply that students engage passively in transportation. As they indulge in this during the day, they hardly spare time for their class work. The findings concur with the study done in Ghana by Debrah et al (2021) which found out that quarrying has a significant negative effect on academic performance. In a study by Omale (2013) in Nigeria on effects of quarrying activities on the academic performance of students, it was found that, quarrying is a threat to the development of education. Similarly a study by Gyemfi (2014) which stated that children of school-going age are attracted by the quarry activities either as a means of offering a helping hand, enriching themselves or as a kind of training to be able to take over from their parents when they retire.

## **V. Conclusion**

The study established that in Rachuonyo North Sub County the influence of quarrying on students’ academic performance was high. Digging out stones loading and offloading were ranked as quarrying activities that had high influence while stone shaping and transporting had low influence on student academic performance.

Thus quarrying activities adversely affects students’ academic performance. This is because the students involved in stone shaping, digging out stones, loading and offloading of stones are highly manual labour that is exhausting and therefore the students cannot perform the two tasks of schooling and quarrying.

Students who involve themselves in quarrying activities get fatigued such that they are distracted from the class work. They do not concentrate in class due to divided attention and fatigue thus reducing their ability to perform well in examinations.

## **VI. Recommendations**

- i. Principals of secondary schools should endeavor to sensitize parents or students in their schools to desist from seeking part time work at the quarry site because the opportunity cost of quarrying is low.
- ii. The principals should sensitize students on the negative effects of quarrying activities so that they concentrate on their studies realizing the opportunity cost of schooling is high.
- iii. The parents and students should be counselled on the fact that education is a major investment in one’s life because the returns to education are very high.
- iv. Stone operators should be sensitized on the need to avoid engaging students in their business as it adversely affects education of these children.

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