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EFFECTS OF ILLEGAL SMALL SCALE MINING ON EXAMINATION RESULTS OF STUDENTS IN JUNIOR HIGH SCHOOLS IN UPPER DENKYIRA EAST MUNICIPALITY, GHANA

Dickson Kudzo Mortson

Peki College of Education, University of Ghana

P. O. Box 14

Peki.

Ghana.

mortsondickson264@gmail.com

+233209383487 / +233542933025



ABSTRACT

This study examined the consequences of illegal small scale mining on examination results of students in Junior High Schools in Upper Denkyira East Municipality in Ghana.

Primary data was collected from students involved in illegal small scale mining in Akropong, Buabinso and Kyekyewere. These settlements were the worst affected by the menace in Upper Denkyira East Municipality.

In all, 182 students were selected systematically from a list of 912 students obtained from illegal small scale mining sites in each community to fill open and close ended interview schedules. Pearson Correlation Coefficient established relationship between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations.

The study found that students engaged in illegal small scale mining because of poverty to meet their needs while others were attracted by the flamboyant lifestyle of illegal small scale miners. The time spent mining illegally in addition to poor preparation by Basic Education Certificate Examination candidates resulted in poor results in the examinations. It was recommended that the Ghana Education Service and other stakeholders initiate and sustain public education of parents and students on the negative effects of illegal small scale mining on academic fortunes of the students and their future.

Key words: License, Basic Education Certificate Examinations, Involvement, Money, Parents

INTRODUCTION

The government of Ghana legalised small scale mining in Ghana in 1989 by passing the Precious Minerals and Marketing Law, Mercury Law, and Small Scale Gold Mining Law (Hilson, 2010). Consequently, small scale mining firms were required by law to obtain prospecting and small scale mining licenses from the Ghana Minerals Commission. These followed approval by the Environmental Protection Agency which supervises prospecting and environmental integrity policy of mining companies. These processes were to compel registered small scale mining firms to operate within regulations and related codes of ethics. None compliance attracted appropriate sanctions (Eshun & Okyere, 2017).

Mining is the extraction of precious metals and minerals from rocks (Adu-Gyamfi, 2014). Minerals mined in Ghana include: gold, diamond, bauxite and manganese. These minerals have attracted large foreign investments into Ghana in the past three decades. Currently, Ghana is the second largest producer of gold in Africa and the ninth in the world. Expansion in mining has improved local economies and improved foreign exchange of the country (Amankwah & Anim-Sackey, 2003).

These notwithstanding, many of the small scale mining firms are not registered and operate illegally and without license. These make it difficult for the Ghana Minerals Commission to ensure their compliance with regulations and codes of ethics which protect workers and the environment.

The increasing number of people involved in illegal small scale mining in Ghana is causing anxiety, fear and worry because of the extreme environmental destructions they leave in their tracks. Prominent natives such as chiefs, politicians, self employed and students are complicit in this illegality. Many of these saboteurs have accumulated wealth through this illegality.

The wealth of these illegal small scale miners seems to entice students into illegal mining in their quest to money and be rich. After all, not all these illegal small scale miners were educated academically. Hence, the students see illegal small scale mining as a means to wealth accumulation irrespective of whether they were educated academically or not.

What is worrying about illegal small scale mining is its negative effects on academic education in many communities in Ghana. Continuous absenteeism, lateness, truancy, teenage pregnancy and deaths among students are taking a toll on external examination results of Basic Schools (Ankutse, 2015). Ankutse (2015) noted that mining communities are distressed and lamenting the threats of illegal small scale mining on future human capital of their communities. Even worse is the fact that students are no longer certain whether to continue schooling or take up illegal small scale mining as full time job.

Illegal small scale mining has devastated the environment through land degradation and mercury pollution associated with mineral processing. Most water bodies such as rivers have been contaminated to the detriment of humans and living organisms that depend on them (Gibbons, Huebler, & Loaiza, 2005). Consequently, illegal small scale mining has resulted in high food prices since fertile arable lands have been destroyed through illegal mining.

Statement of the problem

According to Adjei (2017), about 20,000 to 50,000 students are engaged in illegal small scale mining across communities with substantial gold deposits. The majority of youngsters are engaged in mining as a means to amass wealth quickly. Yet, many initiatives were introduced by government to encourage regular school attendance. For example, Capitation Grants policy was introduced by the government to pay fees of students and wean parents of such payments. In addition, School Feeding Programme was introduced to provide students with one hot meal each day in an effort to keep students in school. Free school uniforms, free textbooks and related learning materials have been provided to students by government to guarantee effective teaching and learning in schools. These policies aim at promoting equal opportunity to students from rich and poor homes.

Poor results in Basic Education Certificate Examinations in illegal small scale mining communities have attracted attention of stakeholders in education. The majority of candidates fail woefully in Basic Education Certificate Examinations. Some stakeholders think teachers are to blame for not putting in their best during lessons. Others claim student truancy and absenteeism are reasons for poor results. Many say parents pay less attention to needs of their children thus compelling the students to engage in illegal small scale mining alongside schooling; to deal with financial deficiencies of parents.

At this juncture, one may ask concerning government policy interventions: What is the status of these brilliant educational policy interventions? Why have the policy interventions failed to elicit the expected responses aimed at mitigating students' involvement in illegal small scale mining? Indeed, there is paucity of literature on the outcomes of these policy interventions aimed at promoting effective teaching and learning in illegal small scale mining communities to protect human capital there. Examination results of students in Junior High Schools in Upper Denkyira East Municipality in Ghana is on continuous downward spiral. This study therefore

seeks to examine the effects of illegal small scale mining on examination results of students in Junior High Schools in Upper Denkyira East Municipality in Ghana.

Objectives of the study

The purpose of this study is to examine the effects of illegal small scale mining on examination results of students in Junior High Schools in Upper Denkyira East Municipality in Ghana.

Specific objects are to:

- i. examine the factors encouraging students into illegal small scale mining,
- ii. assess the effects of illegal small scale mining on examination results of students in Basic Education Certificate Examinations.

Hypothesis

The study relied on these hypotheses:

Ho: There is no significant relationship between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations.

H₁: There is a significant relationship between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations.

Significance of the study

The danger of illegal small scale mining on examination results of students who are the future human resource of Ghana cannot be underestimated. The discovery of the real factors encouraging students' involvement in this illegality will help to reverse the trend for the benefit of these communities and country.

In addition, this study would assist the Ministry of Education in formulating policies that target such vulnerable illegal small scale mining communities to sustain modest gains made in the past to improve examination results of students in such communities.

Finally, it will provide a platform to the Ministry of Education to examine effectiveness of their past policy initiatives and to decide on alternative policies which would adequately discourage students participation in illegal small scale mining. This will refocus attention of students on academics.

LITERATURE REVIEW

Theoretical framework

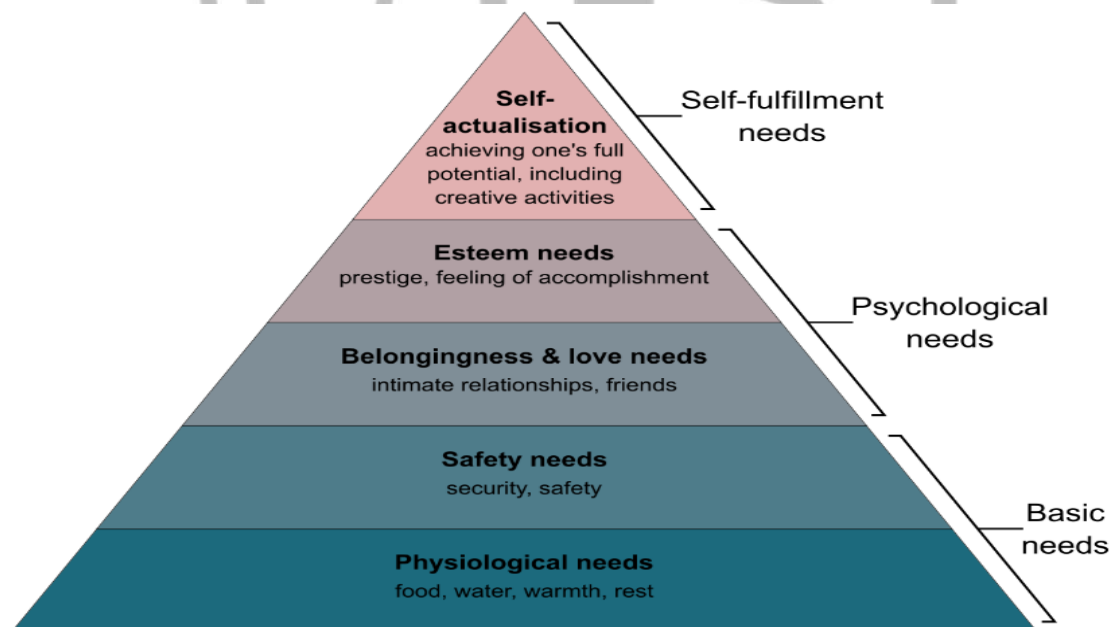
This study relied on Market Failure and Multiple Equilibrium Framework by Henning and Gary (1993) to explain students' involvement in illegal small scale mining. The market failure and multiple equilibrium framework assumes that parents are responsible for needs and happiness of their children. Hence, parents pay attention to the interaction between market characteristics and child labour which are manipulated to arrive at a solution. For example, Henning and Gary (1993) examined challenges in the market for adult labour which favour child labour. They assume the situation where adult wage is on down-ward trend results in a rise in adult unemployment. They concluded that in such situations, the probability of children working is high.

Henning and Gary (1993) examined the concept of child labour and school attendance in the human capital market (academic education of children) and the physical market. Human capital investment involves direct and indirect cost of schooling. Ranjan (2001) noted that parents invest in children education when they have access and benefits from capital market. Hence, poor parents will fail to invest in children education when capital market fails. Hence, children of poor parents are more likely to engage in illegal small scale mining ending up as poor

uneducated children for the next generation. This framework concludes that providing academic education to a generation of children pulls the entire family from low incomes of parents to higher future income levels of children for sustenance of the family.

Although the market failure and multiple equilibrium framework adequately analyses circumstances of child labour and students' involvement in illegal small scale mining for sustenance and survival, it failed to identify the actual needs of students which compel them into mining in their quest to satisfy such needs. Hence, we turn our attention to Abraham Maslow's hierarchy of needs.

The framework of Abraham Maslow's hierarchy of needs grouped human needs into five categories: physiological needs, safety needs, love and belonging needs, esteem needs and self-actualisation (Maslow, 1971). Figure 1 shows the hierarchy of needs from physiological needs through to self-actualisation.



Source: Consumer behaviour model, 2020

Involvement in illegal small scale mining enables students to satisfy their basic needs which include food, clothing and shelter because most families are destitute and deprived (Akabzaa, 2007).

Akabzaa (2007) added that individuals undertake different activities to earn income. Consequently, students evolve different strategies to earn income to take care of their basic needs. For instance, establishment of illegal small scale mining sites displace farms and livelihoods. Such displacements deny residents of such communities sustenance which directly affect their livelihoods and ability to satisfy their physiological needs. Students of poor parentage therefore, turn their attention to illegal small scale mines to work for income in support of their families. Students involved in illegal small scale mining rarely attend school resulting in poor academic results.

Thorsen (2012), agrees with Akabzaa (2007) that poverty is the most critical factor compelling students into illegal small scale mines. Thorsen (2012) emphasised that farmlands are acquired by these illegal small scale miners from the farmers at cheap prices. By six months, the farmers experience severe poverty due to lack of alternative livelihoods. In such situations, earnings by their children supplement household income and financial security of the family. It was the view of Thorsen (2012) that students whose parents are sick or disable make significant contribution to the upkeep of their family by seeking employment in the illegal small scale mines.

Conceptual framework

In order to examine the consequences of illegal small scale mining on examination results of students in Junior High Schools in Upper Denkyira East Municipality in Ghana, key factors in the framework of Abrahams Maslow's hierarchy of needs were incorporated into the conceptual framework as *guiding principles*.

The conceptual framework focused on two important variables: students' involvement in illegal small scale mining and poor examination results of students in Basic Education Certificate Examinations. Illegal small scale mining in the communities has influence on students' school attendance, learning activities, and examination results. Education depends on many variables which foster cognitive development of students. For instance, environmental conditions influence learning. Consequently, illegal small scale mining in the communities affect cognitive development and learning process of students. Students' involvement in illegal small scale mining as a means to earning income and providing their needs affect their cognitive development and performance in examinations. Students of poor parentage will opt for illegal mining because it offers a short term solution to their individual and family needs.

The focus of this conceptual framework is that students' involvement in illegal small scale mining results in students' absenteeism in school and eventually results in poor performance in Basic Education Certificate Examinations. Students quest for "*quick money*" keeps them away from school. Their colleagues also get attracted to the illicit small scale mining thereby increasing the number of absentees. Illegal small scale mining has tremendous negative effects on students.

Factors encouraging students' involvement in illegal small scale mining

Illegal small scale mining is very enticing particularly to students who expect a lucky break (Ofosu-Mensah, 2011). These students move into illegal mining sites located in their communities to work as a way of improving their family and individual standards of living. Akabzaa (2007) supports this view that students have no academic qualification to secure more lucrative jobs. Hence, they engage in this illegality to get income which they need to support their academic education.

In addition, Ofosu-Mensah (2011) affirmed the mad rush by students to copy and live prestigious and affluent lifestyle of illegal small scale miners. Prestige and affluence are hall marks of reputation, achievement, position and recognition. Ofosu-Mensah (2011) asserted that illegal miners earn \$100.00 daily on the average. This explains why they spend lavishly. Paying student-miners \$50.00 daily can take care of their needs adequately and support survival of their families. The question which comes to mind immediately is: how many professionals in Ghana are paid this colossal amount daily? These student-miners end up making more money monthly than their teachers. In the view of Ofosu-Mansah (1999) the importance of gold in the traditions of Ghana coupled with weak law enforcement regimes means this illegality will persist for a long time to come.

From the foregoing, it has become clear that poverty in families is pushing students to quit or absent themselves from school to work. Hilson (2010) observed that many rural families in the countryside see illegal small scale mining as a means to mobilise money. Hilson (2010) added that most rural families with poor financial background incidentally have large family sizes. Relying on the income of a parent to sustain the family is difficult. Such parents look up to their children to also contribute to the family upkeep. According to Owusu, Bansah, and Mensah, (2019), students as young as eight years are involved in illegal mining to feed their unemployed parents. Eventually, some students take a break from school to make money especially when their parents are incapacitated or sick. Therefore, most students drop out of school because they fail to see relevance of education in their future wellbeing.

Eshun and Okyere (2017) observed that some parents are irresponsible. They expect their children to work for their upkeep. Students employed in illegal small scale mining use very simple tools such as pick-axe, shovel, cutlass, spade and others. Water pump and explosives are also used in some cases. The schedules of these student-miners are the crushing of mineral

bearing rocks into powder, washing crushed sediments by hands along river banks or using washing blanket to separate the minerals using panning method (Hilson, 2001).

Effects of illegal small scale mining on examination results of students in Basic Education Certificate Examinations (BECE)

Ghana places premium on academic education. The Education Act of 1961, the 1992 Constitution and related Acts have sought to promote Free Compulsory Universal Basic Education (UNICEF, 2007). UNICEF (2007) recognises the impact of child labour on education of children. Students in illegal small scale mining spend much of their time working and this deprives them of the time to attend school.

Students in small scale mining devote much of their time and energy to work leaving barely no time for school and lessons. Regular absence from school, poor participation in lessons due to fatigue cause many of them to doze off during lessons. Consequently, they benefit nothing in the process.

As Diaz (2003) noted, poor examination results are the situation where students do not achieve academic outcomes according to their abilities. Poor examination results are attributable to school absenteeism, poor coordination between teachers and students, as well as poor participation in lessons.

According to Adu-Gyamfi (2014) involvement of students in illegal small scale mining has negative effects on their academic results. Students who are regular to school perform extremely well contrary to the poor performance achieved by truant and absentee students. This position is re-enforced by Saiduddin (2003) in his study of performance of Junior High School students. He found a positive correlation between school attendance and high examination achievement. Heady (2003) also found that regularity to class was positively connected to examination results of students.

MATERIALS AND METHODS

Study area

Upper Denkyira East Municipality is among thirty-three districts in the Central Region of Ghana. By 1988, Upper Denkyira East Municipality was part of the Upper Denkyira District which was calved out of Denkyira District. On 29th February, 2008, the district was split into Upper Denkyira East and Upper Denkyira West. The east was elevated to Municipal status in the same year, 2008.

The Municipal is between latitudes 5°, 30° and 6° North of the equator and stretches between longitudes 1° W and 2°W of the Greenwich Meridian. It is within semi equatorial climate with double maxima of rainfall. The total annual mean rainfall is between 1,200mm and 200mm. The mean annual temperature is 29° Celsius. The Municipality is drained by a major river, River Offin. The Upper Denkyira East Municipality is underlaid by Birimian and Tarkwaian rocks which form a plateau of 250 metres above sea level (Hilson, 2001). The rocks contain gold deposits along the valleys of River Offin and its tributaries and are mined by both licensed and illegal small scale miners.

Research perspective

This study of illegal small scale mining is underlined by positivist philosophy. Positivism is a philosophical system which accepts factually that authentic knowledge is gained through the confirmation of established theories using strict scientific procedures. This study is grounded on collection of data from students involved in illegal small scale mining.

Again, true logical analyses were conducted in accordance with the principles of pure validity and mathematics to establish relationship between variables under investigation (Ranjit, 2005).

Research design

This study used cross-sectional design. This design is a fact finding design which is used to get descriptive data to show relationship between variables under investigation. According to Gay (2012) cross-sectional design is fast and less expensive.

In studying the effects of illegal small scale mining on examination results of students in Junior High Schools in Upper Denkyira East Municipality in Ghana, cross-sectional design was considered most appropriate for data collection. Consequently, data was collected, managed, and analysed. The results were compared to another set of facts. Quantitative research fundamentally comprises data collection for purposes of testing hypothesis. Using cross-sectional design ensures in-depth analysis and understanding of the situation (Gay, 2012).

Cross-sectional design was helpful particularly in assessing the effects of illegal small scale mining on examination results of students in Junior High Schools in Upper Denkyira East Municipality in Ghana. Specifically: (i) examine the factors encouraging students into illegal small scale mining, (ii) assess the effects of illegal small scale mining on examination results of students in Basic Education Certificate Examinations since illegal small scale mining became established in the municipality. Open and close ended structured interview schedules were used to collect data from respondents. Quantitative research ensures accuracy, quantified and accurate conclusions. Hence, the findings can be generalised.

Sampling and data collection

Population for the study was all students involved in illegal small scale mining in Akropong, Buabinso and Kyekyewere. A list of 912 students was obtained from owners of illegal small scale mining sites in these settlements. The list had names of students, names of their schools, their ages, remunerations and communities of origin. These settlements were used for the study

simply because they were the worst affected by the menace of students' involvement in illegal small scale mining.

Primary data was collected from students involved in illegal small scale mining in Akropong, Buabinso and Kyekyewere. Data obtained from the students was important to uncover true effects of illegal small scale mining on examination results of students in Junior High Schools in Upper Denkyira East Municipality in Ghana.

A table of population and related sample size by Gay, Mills and Airasian (2009) showed a sample of 182 students as appropriate for the population under study. Proportional sample size of 20% student respondents were calculated for each community as shown in Table 1.

Table 1: Sample of respondents in selected communities

Illegal small scale mining communities	Number of students involved in illegal small scale mining	Selected number of students involved in illegal small scale mining
Akropong	372	74
Buabinso	206	41
Kyekyewere	334	67
Total	912	182

Students involved in illegal small scale mining were selected systematically from the list obtained from illegal mining sites in each settlement for the study. In Akropong settlement, 75 students were selected systematically at an interval of five (5) from 372 students on the list. The students on the 5th position of the list of illegal small scale miners was selected randomly to answer questions in the open and close ended structured interview schedule. That was followed by the student on the 15th position, then the 20th position, and 25th

position..... 372nd position. In Buabinso settlement, 41 students were selected systematically in an interval of five (5) to fill open and close ended interview schedules. In all, 182 interview schedules were administered to respondents in the three settlements selected for this study.

Questions posed in the open and close ended interview schedules were based on literature of students' involvement in illegal small scale mining in other countries in Africa and beyond.

Data analysis

The data obtained from 182 interview scheduled were analysed systematically with the help of statistical software: Statistical Product for Service Solution (SPSS) version 18. The software allowed easy analysis and subsequent drawing of graphs and quantification in percentages. The hypothesis was analysed by means of Pearson's correlation coefficient to determine the existence of a relationship between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations.

FINDINGS AND DISCUSSION

Socio-demographic characteristics of respondents in illegal small scale mining

The majority of respondents were males 79.7% (n=145) while the rest were females. Moreover, the majority of respondents 78.6% (n=143) were between 16 years and 20 years while 6.0% (n=11) were aged between 6 years and 10 years as shown in Table 2. It was evident that all respondents (n=182) were Junior High School students in the Upper Denkyira East Municipality. This finding coincides with the findings of Akabzaa (2007) and Thorsen (2012) that the majority of students engaged in illegal small scale mining are aged between 16 years and 21 years.

Table 2: Socio-demographic characteristics of respondents in illegal small scale mining

Background characteristics	Frequency	Percentages
Sex		
Male	145	79.7
Female	37	20.3
Total	182	100.0
Age		
6-10	11	6.0
11-15	20	11.0
16-20	143	78.6
> 21	8	4.4
Total	182	100.0
Level of education		
Junior High School	182	100.0
Senior High School	0	0.0
Post Secondary/College	0	0.0
Total	182	100.0

Factors encouraging students into illegal small scale mining

This study examined factors which encouraged Junior High Schools students into illegal small scale mining. The study found that 85.0% (n=155) of respondents engaged in illegal small scale mining because of poverty. They claimed their parents were unable to provide their basic needs. Consequently, they engaged in mining to meet such needs. This finding coincides with the findings of Hilson (2010) that many rural families with poor financial background incidentally have large families. Relying on the income of one parent to sustain the family is difficult. Hence, such parents look up to their children to contribute to the family upkeep.

Table 3: Factors encouraging students into illegal small scale mining

Factors encouraging students into illegal small scale mining	N	% in agreement	Mean	Standard Deviation
Engage in illegal small scale mining because of poverty	182	85.0	4.88	0.69
Parents are sick and unable to provide basic needs	182	90.4	4.79	0.60

Engage in illegal mining to live flamboyant life style	182	84.3	4.78	0.54
Essence of education is to get means of sustenance (money)	182	94.3	4.89	0.83

Scale: 1 = Strongly disagree; 2 = Disagree; 3 = No opinion; 4 = Agree; 5 = Strongly agree

In addition, 90.4% (n=165) of respondents stated that their parents were sick and unable to provide their basic needs. This finding is similar to the findings of Owusu et al. (2019) that students as young as eight years are involved in illegal mining to feed their unemployed parents. Eventually, such students take a break from school to work because their parents are incapacitated.

Again, 84.3% (n=154) of the respondents noted that they moved into illegal mining because they wanted a flamboyant life style because “*life is short*”. This finding is similar to the finding of Ababio (2011) that mad rush by students into small scale mining is because of the prestigious and affluent lifestyle of miners. Ababio (2011) emphasised that prestige and affluence are hall marks of reputation, achievement, position and recognition. These attributes are amplified by illegal small scale miners who spend lavishly in communities.

Moreover, 94.3% (n=172) of respondents said that the essence of education is to get means of sustenance which is guaranteed by money. Getting involved in illegal mining made it easy to get income and ensured sustenance. Hence, whether now or in future, money is money. This finding supports the finding of Ofosu-Mensah (2011) that each student earns \$50.00 daily and this can take care of students and their families. Ofosu-Mensah (2011) continued that many professionals do not earn \$50 daily. This implies that students make more money monthly than their teachers.

Effects of illegal small scale mining on examination results of students in Basic Education Certificate Examinations (BECE)

In the view of 78.3% (n=143) of respondents in illegal small scale mining, the time spent on mining illegally negatively disrupt their studies. They clarified their stance that they usually get tired by close of work. As a result, they are unable to study and that adversely affects their studies. This finding relates to the findings of UNICEF (2007) which recognised the impact of child labour on education of children. Students in illegal mining spend much of their time working and this deprives them time to attend school. They devote their time and energy to work leaving barely none for school and lessons.

Again, 99.1% (n=180) of respondents stated that working in illegal mining sites adversely affects their academic work. This finding coincides with the findings of Diaz (2003) that the absence from lesson and poor participation in lesson as a result of fatigue caused many of them to doze off during lessons benefiting nothing in the process.

Table 3: Effects of illegal small scale mining on examination results of students in Basic Education Certificate Examinations (BECE)

Effects of illegal small scale mining on examination results of students in BECE	N	% in agreement	Mean	Standard Deviation
The time spent on mining illegally negatively disrupt their studies	182	78.3	4.60	0.62
Working in illegal mining sites adversely affects their academic work	182	99.1	4.88	0.69
Engaging in illegal mining denies students the chance to complete their assignments and learn	182	84.9	4.27	0.57
They use money earned from illegal small scale mining to support their academic work	182	68.2	4.49	0.66

Poor preparation by illegal small scale mining BECE candidates resulted in poor BECE results	182	72.8	4.68	0.63
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Scale: 1 = Strongly disagree; 2 = Disagree; 3 = No opinion; 4 = Agree; 5 = Strongly agree

This study also sought to find out whether engaging in illegal mining denies students the chance to complete their assignments. They explained further that irregularity to school has created a gap between them and their colleagues in school. Hence, they did not benefit from peer teaching which could have enabled them to catch up with their colleagues who were regular to school.

Moreover, only 68.2% (n=124) noted they use money earned from illegal small scale mining to support their academic work because they buy stationery and related learning kits. They explained further that they provided financial support to their colleagues in financial difficulties from their earnings.

Again, 72.8% (n=133) of respondents stated that inadequate preparation by candidates involved in illegal small scale mining resulted in poor Basic Education Certificate Examination results. This finding is confirmed by Adu-Gyamfi (2014) that involvement of students in illegal small scale mining has negative effects on academic results of such students. Students who are regular to school performed extremely well contrary to poor performance achieved by truant and absentee students. Again, Saiduddin (2003) also found a positive correlation between school attendance and students' achievement in external examinations. Finally, Heady (2003) also observed that regularity to class was positively connected to examination results.

Relationship between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations

This study examined the relationship between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations. This relationship was tested using Pearson's Correlation Coefficient for the reasons below:

The data was ordinal data, secondly, the data collected had normal distribution; the data was parametric; and confirmed statistical relationship between the two variables. Pearson Correlation Coefficient established relationship between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations.

Table 4: Relationship between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations

		Involvement in illegal small scale mining	Poor examination results in BECE
Involvement in illegal small scale mining	Pearson Correlation	1	.833*
	Sig. (2-tail)	-	.000
	N	182	182
Poor examination results in BECE	Pearson Correlation	.833*	1
	Sig. (2-tail)	.000	-
	N	182	182

The correlation between students' involvement in illegal small scale mining and poor examination results was tested at a significant level of 0.05. The correlation coefficient between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations was 0.833. The *p*-value for the two-tail test of significance was 0.000. Judging by the figures ($r = 0.833$; $P = 0.000$; $N = 182$), it was obvious that there existed a strong, positive and significant correlation between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations.

Hence, the Null Hypothesis (Ho) that, “There is no significant relationship between students’ involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations” was rejected. Related studies also suggested a positive relationship between the two variables. The finding of Saiduddin (2003) was that a positive correlation existed between school attendance and academic achievement in external examinations. The finding was supported further by Heady (2003) that regularity to class was positively connected to examination results. Heady (2003) concluded that regularity to school eliminates examination failure.

CONCLUSION AND RECOMMENDATIONS

The main objective of this study is to examine the effects of illegal small scale mining on examination results of students in Junior High Schools in Upper Denkyira East Municipality in Ghana. This study was underpinned by positivist philosophy and cross-sectional design. Relevant matters reviewed included: factors encouraging students into illegal small scale mining, and the effects of illegal small scale mining on examination results of students in Basic Education Certificate Examinations.

Data for the study was collected from respondents by administering open and close ended structured interview schedule. Systematic sampling techniques was utilised in selecting 182 students out of a population of 912 students in illegal small scale mining in three communities for the study. The communities included: Akropong, Buaninso and Kyekyewere. Data collected from respondents in the field were analysed using statistical software: Statistical Product for Service Solutions (SPSS) version 18. Hypothesis for this study was tested using Pearson’s correlation coefficient.

The first objective examined the factors encouraging students into illegal small scale mining. According to 85% (n =155) of respondents, they engaged in illegal small scale mining because

of poverty. They claimed their parents were unable to provide their needs. Consequently, they engaged in mining to meet their needs. Again, 90.4% (n=165) of respondents stated that their parents were sick and unable to provide their basic needs. According to 84.3% (n=154) of the respondents, they moved into illegal small scale mining because of flamboyant lifestyle of illegal miners. Moreover, 94.3% (n =172) said the essence of education is to get means of sustenance which is guaranteed by money. Getting involved in illegal mining made it easy to get income and ensured sustenance. Hence, whether now or in future, money is money.

The second objective assessed the effects of illegal small scale mining on examination results of students in Basic Education Certificate Examinations. According to 78.3% (n=143) of respondents in illegal small scale mining, the time spent mining illegally negatively disrupts their studies. They clarified their stance that they usually get tired by close of work. As a result, they are unable to study and this adversely affects their studies. Furthermore, 99.1% (n=181) of respondents stated that working in illegal small scale mining sites adversely affects their academic work. They explained that their absence from school robbed them of the benefits of participation in lessons to ask relevant questions for clarification.

On the contrary, 68.2% (n=125) said they use money earned from illegal small scale mining to support their academic work through buying of stationery and related learning kits. The respondents explained further that they spent part of their earnings to support colleague students in financial difficulties. Again, 72.8% (n=133) of respondents stated that poor preparation by illegal small scale mining Basic Education Certificate Examination candidates resulted in poor results in Basic Education Certificate Examinations.

The study concluded that there existed a strong, positive and significant correlation between students' involvement in illegal small scale mining and poor examination results in Basic Education Certificate Examinations. Hence, the Null Hypothesis (H₁) that: "There is a significant relationship between students' involvement in illegal small scale mining and poor

examination results in Basic Education Certificate Examinations” was rejected. The conceptual framework focused on two variables: students’ involvement in illegal small scale mining, and poor examination results in Basic Education Certificate Examinations. Key factors in the framework of Abrahams Maslow’s hierarchy of needs were incorporated into the conceptual framework as *guiding principles*.

Recommendation

On the basis of findings by this study, the following recommendations were made to discourage students involvement in illegal small scale mining and improve examination results in Basic Education Certificate Examinations.

First, the Ghana Education Service, Ghana Minerals Commission, National Commission on Civic Education, the Upper Denkyira East Municipal and Assembly Member must initiate and sustain public education of parents and students on the negative effects of illegal small scale mining on future academic fortunes of the students. Attention should be drawn to government policies such as Free Compulsory Universal Basic Education (FCuBE), Capitation Grant, School Feeding Programme and such interventions intended to lessen financial burden on parents in providing and paying fees of students.

Ghana has signed international conventions on the right of the child to education. Hence, no effort should be spared in ensuring that every student is in school and learning to emancipate themselves from life constraints.

Again, the schools’ Counselling Departments should rise to the occasion. They should counsel students involved in illegal small scale mining to see bigger and brighter future through education. Academic education will make students mining engineers in future instead of being mere labourers in these illegal small scale mining sites.

There is need for collaboration between local chiefs, parents and school authorities to encourage students involved in illegal small scale mining to return to school and ensure their total development.

The Municipal Security Council must enforce the Precious Minerals and Marketing Law, Mercury Law, and Small Scale Gold Mining Law to ensure students in illegal small scale mining sites are forced out into schools. This will guarantee the realisation of the Free Compulsory Universal Basic Education guaranteed by the constitution.

Finally, the government must forbid students from engaging in all mining related activities. Students caught in swoops in illegal mining sites must be brought to justice. Parents of students found culpable should be tried in the law courts and heavy fines imposed on them as punishment. Failure to pay the heavy fines should result in imprisonment of parents. Such punishments would send fear down the spines of irresponsible parents and awaken them to their responsibilities.

REFERENCES

- Adjei, A. (2017). *The impact of illegal mining (galamsey) on cocoa production and livelihoods: A case study of Amansie West District*. (MBA thesis, University of Education, Winneba, Ghana).
- Adu-Gyamfi, Ernest. (2014). The Effect of Illegal Mining on School Attendance and Academic Performance of Junior High School Students in Upper Denkyira West District of Ghana. *Journal of Education & Human Development*. 3(1), 523-545.
- Akabzaa, T. (2007). African mining codes, a race to the bottom. *African Agenda*, 7(3), 62-63.

- Amankwah, R. K., & Anim-Sackey, C. (2003). Strategies for sustainable development of small-scale gold and diamond mining industry of Ghana. *Resource Policy*, 29, 131-138.
- Ankutse, B. (2015). *Assessing the effects of mining on the educational life of children in the Asutifi District in the Brong Ahafo Region of Ghana*. (Master's thesis, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana).
- Diaz, A. L. (2003). Personal, family and academic factors affecting low achievement in secondary school. *Electronic journal of research in educational psychology and psychology*, 1(1), 43-66.
- Eshun, P.A. & Okyere, E. (2017). Assessment of the challenges in policy implementation in the small scale gold mining sector in Ghana-a case study. *Ghana Mining Journal*, 17(1), 54–63.
<https://doi.org/10.4314/gm.v17i1.6>.
- Gay, L.R. (2012). *Educational research competencies for analysis and application*. New York, NY: MacMillan Books.
- Gay, L.R., Mills, G.E., & Airasian, P. (2009). *Educational research: Competencies for analysis and application*. Upper Saddle River, NJ: Pearson Education Press.
- Gibbons, E. D, Huebler, F. and Loaiza, E. (2005). Child Labour, Education and the Principle of Non- Discrimination, UNICEF, New York.
- Heady, C. (2003). “The effect of child labour on learning achievement”. *World Development* 31(2), 385-398.
- Henning, B. & Gary, G. (1993). Coordination Failure, Multiple Equilibria and Economic Institutions. *Economica*, 60, 257-280.
<https://doi.org/10.2307/2554851>
<https://www.jstor.org/stable/2554851>
- Hilson, G. (2001). Putting theory into practice: How has the gold mining industry interpreted the concept of sustainable development? *Mineral Resources Engineering*, 10, 397 - 413.
- Hilson, G. (2010). Child labour in African artisanal mining communities: Experiences from Northern Ghana. *Development and change*, 41(3), 445-473.
- Maslow, A. (1971). *The farther reaches of human nature*. The Viking Press.
- Oforu-Mensah, E. A. (2011). Gold mining and the socio-economic development of Obuasi in Adanse. *African Journal of History and Culture*. 3(4), 54-64.

- Oforu-Mensah, A. E. (1999). Historical overview of traditional and modern gold mining in Ghana. *International Research Journal of Library, Information and Archival Studies*, 1(1), 006-022.
- Owusu, O., Bansah, K. J., & Mensah, A. K. (2019). "Small in size, but big in impact": Socio-environmental reforms for sustainable artisanal and small-scale mining. *Journal of Sustainable Mining*, 18(1), 38–44.
<https://doi.org/10.1016/j.jsm.2019.02.001>.
- Ranjan, P. (2001) Credit constraints and the phenomenon of child labour. *Journal of Development Economics*, 64(1), 81-102.
- Ranjit, K. (2005). *Research methodology: A step by step guide for beginners*. London, Britain: SAGE Press.
- Saiduddin, J. (2003). Factors affecting achievement at a junior high school on the Pine Ridge Reservation, South Dakota. (Doctorate thesis, The Ohio State University, Columbus, Ohio).
<http://rave.ohiolink.edu/etdc/view>.
- Thorsen, D. (2012). "Children in mines and quarries; Evidence from West and Central Africa". Discussion Paper. UNICEF WCAR, Dakar.
- UNICEF (2007). *Child Labour, Education and Policy Options: UNICEF Staff Working Papers Division of Policy and Planning Series*. NY, New York: UNICEF.