

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI**

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**FACULTY OF AGRICULTURE**

**DEPARTMENT OF HORTICULTURE**

**EFFECTS OF A WELL LANDSCAPED ENVIRONMENT ON TEACHING AND  
LEARNING IN BASIC SCHOOLS IN THE KUMASI METROPOLIS**

**BY**

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IN LANDSCAPE STUDIES**

**MAY, 2014**

## DECLARATION

This thesis has been the result of my own field research except where specific references have been made. It has not been submitted towards any degree or being submitted concurrently in candidature for any other degree. I hold the responsibility for the views expressed and the factual accuracy of the contents.

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## ABSTRACT

This study assessed the state of grounds in Basic Schools in the Kumasi Metropolis, and its effect on teaching and learning. The study was qualitative and quantitative in approach. 100 Basic schools within the Kumasi Metropolis were selected for the study. Data was collected from head teachers, teachers and pupils. Tools for data collection included structured questionnaires and interview guide.

The study investigated the knowledge of respondents on; the benefits of landscaping schools, the concept of outdoor learning and the relationship between the schools landscape and the school curriculum. The findings of the study revealed that Grounds in Basic Schools in the Kumasi Metropolis were generally poor and the use of ornamental plants was simply lacking in most schools. The research clearly showed that most schools within the study area, that had good landscaped grounds scored very good aggregates in the BECE, while those with very poor or no landscaping performed poorly comparatively, in the BECE. It also revealed that Head teachers and teachers are aware of the functional and aesthetic benefits in landscaping school grounds but not many of them were prepared to help improve on the environment in schools even though it is encouraged.

## **DEDICATION**

To my parents, Prof. S. E. Owusu and Mrs. Mary Cromwell Owusu with much gratitude.

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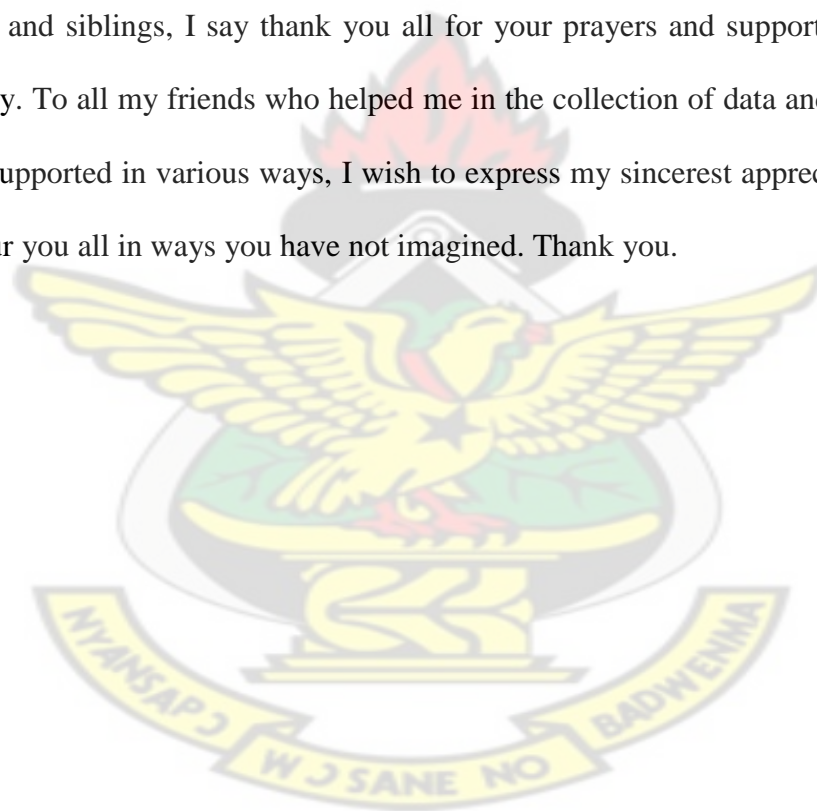


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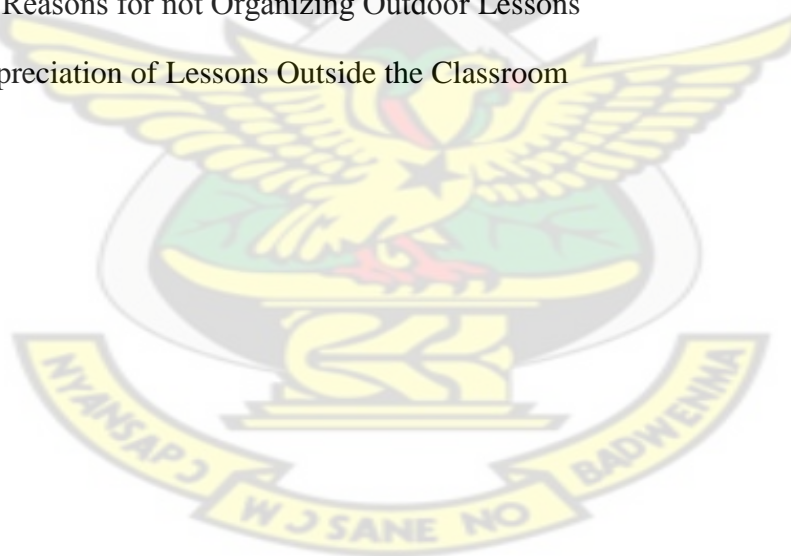


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# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 BACKGROUND

Landscaping can be regarded as a service rendered by the landscaping industry that serves people by fabricating environment where they can live, work, play, or just pass time (Ingels, 2004). It can also be looked at as the management of outdoor spaces for the benefit of man. Whatever the purpose for a landscaped environment, it is an invaluable asset with a myriad of functional and aesthetic benefits which cannot be overlooked.

To this end, Ingels (2004), went further to explain that apart from the aesthetic value of a pleasing, colourful and well organized environment, a well-planned landscape functions from such practical achievements as; cooling the environment during hot periods, allowing the sun's warmth to heat the cool periods, blocking winds and sheltering from rain controlling surface drainage of water, providing shade and providing proper circulation patterns. Indeed in the area of education the design and spaces of a school ground expresses societal norms and objectives, guiding and orchestrating children's outdoor activities at school (Gagen, 2000).

Previous studies by various authors have proved that the design of the school ground did influence children's play behaviour, and simultaneously enhances their developments and well-being. Appropriate physical environment through landscape design in the school ground is a means towards advancing the developmental and educational process (Cohen and Trostle, 1990), and has potential as a site which promotes environmental learning among children.

This therefore suggests that without well thought out and properly managed landscapes there would be disorder in circulation, discomfort in both outdoor and indoor environments and lack of visually stimulating views that promote good living. Also the very benefits of a well landscaped school grounds would elude users of the grounds.

The Kumasi metropolitan area covers 254 square kilometres and is made up of 10 sub-metropolitan areas and each of these areas has more than one basic school which is either a private school or public school (Maoulidi, 2010). Public schools are government owned while private schools are owned by institutions mostly churches or individuals. There are about 655 private and 431 public basic schools in the Metropolis, making 1086 basic schools.

Basic education in Ghana consists of two years of pre-primary school, six years of primary school and three years of Junior High School (JHS) with pupils' ages ranging from four years to fourteen years (Maoulidi, 2010).

The schools outdoor spaces vary in size, topography, and level of development on the school grounds. These differences makes each school unique advantages and disadvantages. Some schools are paved while other are bare, others are small while some other school have grounds the size of a football field. All these are factors that would affect the development of a schools landscape. With this in mind, Ingels (2004), indicated that the school grounds also function as moral geographies or guidelines 'which are embedded with codes about how and where the children ought to learn and play. The design of the school grounds, including the features, school regulation and social dynamics, plays an important role to promote particular forms of physical activities and limit others.



In addition the Kumasi metropolis has Sub metropolitan areas some of which could be described as endowed or developed and others as less endowed or under developed, these are likely to have an impact on the school environments.

Fortunately, there is a growing movement with schools in the Western world to transform parts of their schoolyards from barren areas of grass, asphalt, and wood chips with manufactured equipment into naturalized environments for children's exploration and play, which also supports classroom learning. One such program is Learning through Landscapes, set out in the 1980's to transform all the schoolyards in Britain to more natural spaces (Worth, 2003). Additional programs are underway in Canada (Evergreen Society), Australia (Learnsapes), Nova Scotia (Model Schools Project) Scotland and Sweden (Skolans Uterum) (Moore and Cosco, 2000). In the U.S., there is a growing natural schoolyard movement to reconnect children with nature. States, including Maryland, California, Ohio, Florida, New Hampshire, Utah and Vermont have initiated greening programs. Both Boston (Boston Schoolyard Initiative) and San Francisco (Green Schoolyard Alliance) have programs underway

Most Basic Schools in Kumasi appear not to have much in terms of proper planning, design and management of school grounds. Most development projects in basic schools seem to be focused on building more structures such as classroom blocks, libraries and canteens which are done in most cases with no budgetary consideration for planning and enhancing the environment in which the teachers and their pupils will teach and learn respectively. In cases where landscaping of the grounds may have been included in the package, they may not see the light of day because management of these schools and sometimes government may be in a hurry to commission projects as a result once the buildings are completed the projects are seen as complete and the grounds are ignored afterward. In most cases, problems such as erosion (exposing foundations of

school blocks), high temperatures in schools due to lack of shade trees, encroachment by outsiders, rampant accidents on the school compounds during play, poor refuse management and storm related problem could become a burden for school authorities and much of the potential benefits of landscaping school grounds are may be undermined.

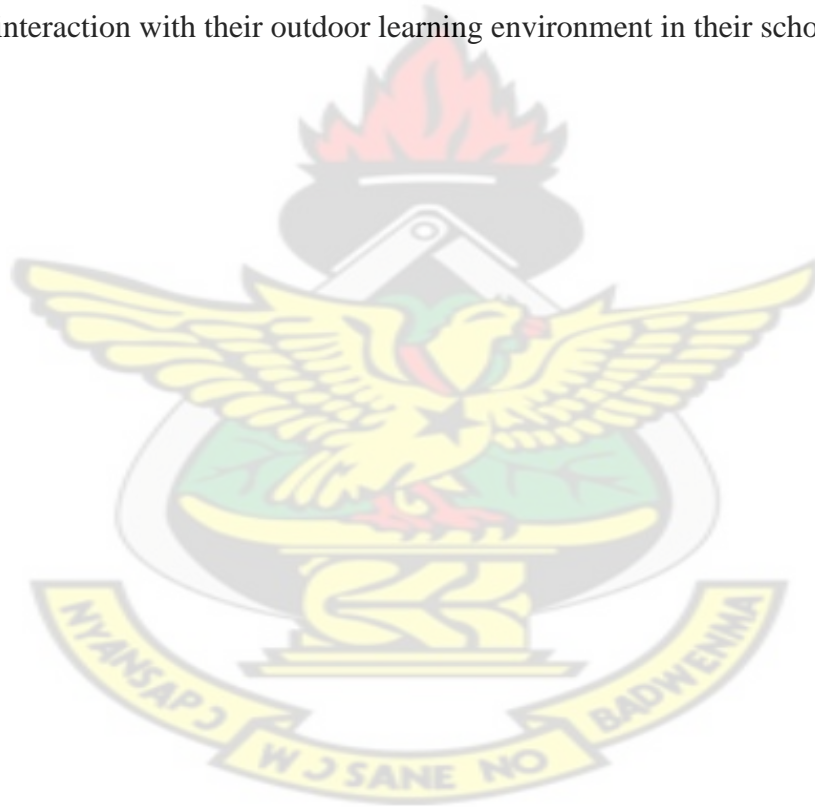
The purpose of this study was to assess the landscapes of school grounds, and investigate its impact on teaching and learning in Basic Schools in the Kumasi Metropolis.

The specific objectives of the study are to:

- To analyze the state of the grounds in the basic schools in the Kumasi Metropolis.
- Find out if good landscaping has an impact on teaching and learning in basic schools in the Kumasi Metropolis
- To ascertain the knowledge of head teachers and teaching staff on the Benefits of landscaping school grounds
- To appraise the level of outdoor learning activities in Basic Schools.
- To investigate the relevance of outdoor learning to the school curriculum.in a well landscaped school

There is an extensive body of research demonstrating the range of social and educational benefits available to children with access to high-quality school landscapes. Such as children who experience school grounds with well designed, diverse, natural play areas are significantly more physically active, more aware of nutrition, more civil to one another, and more creative (Lucas, 1995). Children with views of and contact with nature score higher on tests of concentration and self-discipline. The greener, the better the scores, (Wells, 2000) and (Taylor, *et al.*, 2002). Exposure to natural environments improves children's cognitive development by improving their awareness, reasoning and observational skills (Pyle, 2002), just to mention a few.

This subject of school landscapes and the environment in which teaching and learning is done is crucial since every Ghanaian child is expected to go through Free Compulsory Universal Basic Education. This means that most of their thought patterns, attitudes and talents will be acquired or realized in school since they spend most of the day in their schools. Pupils are expected to excel through the educational levels and grow up to become well oriented, problem solving and hardworking citizens to enhance development of the nation. This vision will only be possible if every available resource is tapped during their formative years to ensure a complete basic education which should include contact with a good and well planned natural environment and useful practical interaction with their outdoor learning environment in their schools.



## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 DEFINITIONS OF LANDSCAPE AND LANDSCAPING**

Ingels (2004), defined landscape design as a service industry, that serves people by fabricating environments where they can live, work, play, or just pass time. These environments are primarily in outdoors or are in interior settings that seek to suggest the outdoors. Landscapers use products of others to create habitat areas that can range from utilitarian to fantastic.

Landscape design is also defined as the fine art whose most important function is to create beauty and preserve it in the surroundings of human habitations in the broader natural scenery of the countryside (Rice and Rice., 1986)

In landscape design, past and future must be related. The designer thinks not just of an area or region as is now seen but of how it came to be so what has been its history and how it will develop when it passes out of the designer's hands (Clouston, 1996).

Landscaping is both science and art, and requires good observation and design skills. A good landscape designer understands the elements of nature and construction, and blends them accordingly (Motloch, 1991)

##### **2.1.1 Basic Education in Ghana**

Basic Education is compulsory in Ghana and consists of two years of pre-primary school, six years of primary school and three years of Junior High School (JHS). This system prepares students to sit for the Basic Education Certificate Examination (BECE) at the end of the third year in JHS.

After completing the basic education cycle, students may attend a Senior High School (SHS) or enrol in a technical and vocational training (TVET) institution (Maoulidi, 2010).

During the late 1980s and early 1990s, Ghana introduced decentralization of Government. The Local Government Law PNDCL 207 of 1988 established District Assemblies (called Metropolitan or Municipal Assemblies in the main urban centres, and lower levels of Local Government. Although Kumasi is generally referred to as a district, its boundaries relate to the urban area, and the elected assembly is known as the Kumasi Metropolitan Assembly (KMA), (Maoulidi, 2010)

As a result of the decentralization, education in cities like Kumasi is the responsibility of the District Education Directorates. The relationship between the MoE and the Kumasi Metropolitan Education Directorate is straightforward. The MoE is in charge of policy and direction and provide logistical support, learning materials, and school infrastructure and teacher salaries. Actual implementation is carried out by the Ghana Education Service (GES), which is represented at the local level by the District Education Directorates such as the Kumasi Metropolitan Education Directorate. The responsibility for school infrastructure and the supervision of “Basic” (Primary and Junior High) schools lies with local governments such as the KMA. Each school in the district has a school management committee.

Students begin their six-year primary education at age six and are expected to complete junior high school by age 14. In April 2007, the Government of Ghana launched a New Education Reform to ensure that students become functionally literate and are able to understand and use numbers by the time they complete Basic Education (Ankomah, *et al.*, 2005). According to Education Management Information System (EMIS), in 2008, there were 218 public pre-primary schools, 247 primary schools, 184 junior high schools and 49 senior high schools serving a population of



578,424 school age children in Kumasi. In addition, the city had several tertiary education institutions. Table1 shows the distribution of schools in the city by education level.

Table 1.0 Distribution of Education Institutions in Kumasi by Educational Level, 2008

Level	Public	Private	Total
<b>First Cycle</b>			
Pre-Primary School	218	789	1007
Primary School	247	404	651
Junior High School (JHS)	184	251	435
<b>Second Cycle</b>			
Senior High School (SHS)	18	31	49
Technical/Vocational	1	21	22
<b>Tertiary</b>			
University	2	1	3
Polytechnic	1	0	1

Source: EMIS and Kumasi Metro Health Directorate (2007) for SHS

According to (Psacharopolus, *et al.*, 2002) the major problems facing primary schools in Kumasi metropolis include low educational quality, an insufficient number of schools, inadequate infrastructure including, classroom and toilet facilities, an uneven distribution of facilities, poor school environments and lack of classroom furniture. Given that large class sizes negatively impact the quality of education, stemming from heat build-up in classrooms which leads to lack of concentration especially when the sun is out, because there isn't enough shade on the school grounds or fans in the classroom, there is a need to rehabilitate classrooms and build more schools with good environments to improve the quality of education. EMIS records show that in 2008/09, 13 percent of classrooms in Kumasi needed major repairs .Junior high schools (JHS) are usually located on the same compounds as primary schools. These middle schools are important as parents are more likely to send their children to primary school if an opportunity exists to continue on to JHS since the private rate of return of an investment in secondary education far outweighs the return to an investment in primary education. (Bennell and

Akyeampong, 2006), confirms that private rates of return to secondary education are higher than the rates of return to primary education

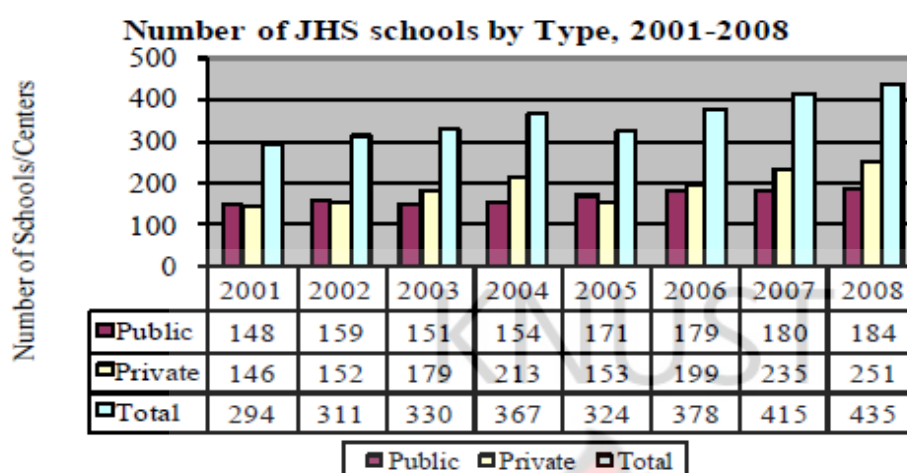


Fig 1.0 Number of JHS Schools by Type in Kumasi, 2001-2008

Source: EMIS (2001 – 2008) Kumasi District Profile

Proper landscaping of school grounds is not very common in Ghana's Basic Schools in spite of the enormous benefits that can be derived from it. The nature of grounds may vary from school to school based on a number of possible factors such as location (urban/ rural areas), ownership (government /private), social status (upper class or prestigious schools as against lower class schools) (Psacharopolus, *et al.*, 2002). All these factors do have very huge impacts on how school grounds are managed with respect to the physical environment in which teaching and learning is done. School grounds are mostly left open and bare, with very little vegetation. Grounds are usually badly eroded and poorly organized with a few trees dotted on the school's compound. The size of school ground also varies widely among schools. Most basic schools have playing fields and quite often these refer to the entire compound with no demarcation, planning or design of any sort.



## **2.2 BENEFITS OF LANDSCAPING**

Apart from the aesthetic value of a pleasing, colourful and well organized environment, a well-conceived landscape functions from such practical achievements as; cooling the environment during hot periods, allowing the sun's warmth to heat the cool periods, blocking winds and sheltering from rain controlling surface drainage of water, providing shade and providing proper circulation patterns. (Ingels, 2004)

School landscapes play an essential role in children's learning and development by providing opportunities for healthy exercise, creative play, social interaction, learning through doing and getting in touch with the natural world. All children have the right to enjoy and benefit from well designed, managed and used school grounds. (Australian Institute of Landscape Architects, 2010)

### **2.2.1 Intelligent Landscape Strategies and School Performance**

There are many measurable benefits to be gained from integrated landscape design in schools which extend far beyond the more obvious & immediate payoffs such as increased visual amenity and community pride (Johnson, 2000). In an educational context, strategically designed and managed landscapes can significantly value-add to building energy efficiency gains, improve environmental quality within and beyond the immediate school precinct, impact positively on children's physical and mental health, and enhance both opportunity and quality of social interactions. (Johnson, 2000)

Contact with nature is vitally important in children's physical and mental development, and integrated outdoor educational areas can measurably enhance learning opportunities.

There is an extensive body of research demonstrating the range of social and educational benefits available to children with access to high-quality school landscapes. Children who experience

school grounds with well designed, diverse, natural play areas are significantly more physically active, more aware of nutrition, more civil to one another, and more creative. High-quality landscaping in school grounds is also closely correlated with increased involvement by adults and members of the nearby community. (Australian Institute of Landscape Architects, 2010)

### **2.2.2 Landscape & Heat Stress**

Green plants can provide natural cooling for areas on the school grounds with a rippling effect of cooler classroom environments. Trees reduce the heating effect of the sun thereby reducing heat stress associated with daytime temperatures. Green plants can also cool an area through transpiration, although without a large number of trees and green plants this effect is minimal. (Clouston, 1996)

In the future, health-related impacts of the urban heat island are likely to increase due to climate change, and children have been identified as one of the most vulnerable groups to heat stress. This has important implications for the design of their educational environment, in terms of physical and mental health outcomes. Recent studies have found that vegetation is the most effective tool to reduce surface temperatures of buildings and adjacent areas. (Australian Institute of Landscape Architects, 2010)

In temperate areas trees can intercept up to 90% of direct summer sun heat loads on buildings (Frank, 2003). In terms of evaporative cooling capacity, a single isolated tree is functionally equivalent to 5 room air conditioners running 20 hours a day. Strategic landscaping can significantly reduce building cooling costs in summer (via shading & evapotranspiration), and heating costs in winter (via reducing wind speeds) – producing typical air conditioning savings of 25-50%, and even up to 80%, for individual buildings (Australian Institute of Landscape

Architects, 2010). The amelioration of heat stress via landscaping, results in increased physical health and comfort, which directly translates to increased levels of physical activity and cognitive functioning, alertness and concentration in children. In urban microclimates plants are useful in moderating the temperature effects of solar and infrared radiation, thus increasing comfort levels, (Herrington, 1980). Also Wagner (2003), indicates that trees absorb the carbon dioxide that contributes to global warming, as well as other gases that contribute to urban pollution. Trees combat global warming by absorbing the carbon emitted by vehicles, lowering carbon emissions from fossil fuel-burning plants, and reducing the energy used for climate control in buildings.

### **2.2.3 Landscape and Learning Outcomes**

According to (Lucas, 1995) contact with nature is vitally important in children's physical and mental development, and integrated outdoor educational areas can measurably enhance learning opportunities. There is an extensive body of research demonstrating the range of social and educational benefits available to children with access to high-quality school landscapes. Children who experience school grounds with well designed, diverse, natural play areas are significantly more physically active, more aware of nutrition, more civil to one another, and more creative.

High-quality landscaping in school grounds is also closely correlated with increased involvement by adults and members of the nearby community. (Lucas, 1995)

Studies about student academic achievement and building condition conclude that the quality of the physical environment significantly affects student achievement. 'There is sufficient research to state without equivocation that the building in which students spends a good deal of their time learning does in fact influence how well they learn' (Earthman, 2004).

Other research has acknowledged that student achievement lags in shabby school buildings but go on to say that this research does not show that student performance rises when facilities go from decent buildings to those equipped with fancy classrooms, swimming pools, television studios and

the like ( Higgins *et al.*, 2005). In one study the significant improvements in the learning environment were attributed to the better attitudes to teaching and learning the improvements in the physical environment created amongst all users (Higgins *et al.*, 2005). In deed Taylor *et al.*, (2002) and Wells and Evan (2003), found that Children with views of and contact with nature score higher on tests of concentration and self-discipline. The greener, the better the scores.

#### **2.2.4 Landscape and Cognitive Functioning**

Daily exposure and access to quality green play spaces for children has been shown to measurably reduce stress, increase ability to focus, and enhance cognitive functioning. Furthermore, these benefits can be demonstrated to accrue proportionally to quality and extent of landscape provision – the more plants, green views and access to natural play areas, the more positive the results. (Crain, 2001)

Research has also shown that for children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), access to high quality landscapes can provide significant relief of symptoms - and the greener a child's everyday environment, the more manageable their symptoms were found to be in general.(Australian Institute of Landscape Architects, 2010)

Research also shows that children who play regularly in natural environments show more advanced motor fitness, including coordination, balance and agility, and they are sick less often (Grahn, *et al.* 1997, Fjortoft, 2001). Furthermore when children play in natural environments, their play is more diverse with imaginative and creative play that fosters language and collaborative skills (Moore & Wong 1997, Taylor, *et al.* 1998, Fjortoft and Sadeie, 2000). Also exposure to natural environments improves children's cognitive development by improving their awareness, reasoning and observational skills (Pyle, 2002).

### 2.2.5 Landscape and Social Interaction

Proximity to nature has been demonstrated to have a positive effect on children's levels of concentration, inhibition of impulsive behaviour, and delay of gratification.

Learning to control aggression and anti-social behaviour is essential for developing self-discipline and effective socialization skills. Intelligent landscape strategies can assist children to develop self-esteem and confidence in a stimulating, supportive & non-threatening environment, equipping them with vital attributes for success within the classroom as well as the wider world. (Malone and Tranter, 2003)

School grounds also function as moral geographies 'which are embedded with codes about how and where the children ought to learn and play. The design of the school grounds, including the features, school regulation and social dynamics, plays an important role to promote particular forms of physical activities and limit others (Ingels, 2004).

Recent research by Yuill *et al.*, (2007), demonstrates that playgrounds can be designed to increase play and other social interaction among five- to seven-year-old boys with ASD (Autism Spectrum Disorders). These researchers have determined that outdoor spaces designed to physically challenge autistic children, provide them with the opportunity to observe others, and support structured, imaginative games can positively influence their social play. The researchers observed the same set of autistic boys playing in two playgrounds, one of which they designed for the experiment, and noted differences in their social behaviors in the two settings.

The researchers observed behaviors on playgrounds because "the playground is an important context for social development and can facilitate social play and peer interaction of many types which can foster the development of social cognitive skills, peer acceptance, and the many social and intellectual benefits associated with acceptance," they wrote.



## 2.3 THE SCHOOL GROUNDS

The term school grounds is used rather than playground to reflect the interest in the diverse uses that school grounds have, rather than the one (very important one) implied by 'playground'. (Lucas, 1994)

It has been suggested that the term school grounds carries less 'semantic baggage' in that it does not imply, for example, conflict between play and learning, use of play equipment or the hard surfacing which has become almost synonymous with the school playground. The term school grounds may also be considered more appropriate for the outdoor environment of basic schools. The use of this more inclusive term is important particularly if one considers the assertion by Blatchford, (1998), that more consideration must be given at basic level to pupils' use of outdoor space and the pupils own dissatisfaction with the outdoor environment. The development of school grounds and their use can be seen in interesting historical perspectives presented by authors offering examples by individuals and illustrating cycles in attitudes to use of school grounds. (Lucas, 1995)

The somewhat undefined nature of school grounds, which allows diverse understandings of them, reflects itself in the various approaches to school grounds research, for example school grounds can be seen as a site for social learning and development, a source of problems and anxiety, a reflection of the outside world, a forgotten space where what happens is little valued, a distinct and separate world with its own culture and tradition, a site for environmental education and awareness, the outdoor classroom, a site for research, a site for intervention, a place to play and part of the whole school/whole community (Casey, 2003), therefore how a researcher sees the school grounds will determine the approach to school ground research.

### **2.3.1 The Landscape of the School Ground**

Children and young people can spend up to twenty five percent of their total school time in the school grounds. School grounds therefore offer an important resource for learning, play and child development, and to promote positive health and well-being, understanding of the environment, citizenship and physical activity for children. However there is a belief that in many schools the potential of this resource currently lies untapped, (Casey, 2003).

With children's access to the outdoors and the natural world becoming increasingly limited or non-existent, child care, kindergarten and schools, where children spend 40 to 50 hours per week, may be mankind's last opportunity to reconnect children with the natural world and create a future generation that values and preserves nature (Cohen and Trostle, 1990) , Many authorities believe the window of opportunity for the formation of bonding with and positive attitudes towards the natural environment develops sometime during early and middle childhood and requires regular interaction with nearby nature.. Some authorities believe that if children don't develop a sense of respect and caring for the natural environment during their first few years, they are at risk for never developing such attitudes (Casey, 2003).

### **2.3.2 The UK and US Situation**

In the UK, the school grounds are often the school's biggest but most neglected 'classroom'. Traditionally the tarmac playground has been seen as a space where primary children are sent during lunch and lesson breaks which can add up to 28% of the school day. If the school is fortunate enough to have a field, this comprises short grass to enable sports to take place in the summer term, and team games, such as football and hockey, in the winter. Most of the year, the grass is



‘out of bounds’ during recreation breaks as it is ‘too wet’, and some schools have sold off their playing fields altogether to pay for repairs and improvements to the school buildings. (Higgins and Nicol, 2002) Large numbers of children are constrained to ‘play’ on a small tarmac yard, and this lack of space frequently results in accidents and behaviour problems. Some schools have cut the mid-afternoon play break because of these problems, and children spend the second half of the school day indoors. This barren landscape is unlikely to stimulate a child’s desire to spend much time in it, and given the choice between going out or staying in during recreational breaks, many choose to stay indoors. (Higgins and Nicol, 2002)

Education became more directly linked to the use of school grounds when Learning through Landscapes (LtL) was founded in 1990. LtL works closely with the British government’s Department for Education and Employment (DfEE) to enable schools to utilize their grounds for outdoor learning of all kinds. Both LtL and DfEE publish high quality grounds maintenance and curriculum guides and compile best practices gathered from British schools nationwide.

Thousands of schools from over a dozen countries now participate in the annual international School Grounds Day, which was inaugurated in 1995. The first international conference on the use of school grounds for learning was held in England in 1997, co-sponsored by the international Program on Educational Building (PEB), LtL and DfEE (PEB Exchange, 1998). Clearly, this aspect of education is being reinvigorated (Wagner, 2000). The National Environmental Education Advisory Council’s 1996 report highlighted the interdisciplinary nature of outdoor learning but cautioned that environmental education is not yet well integrated into American education reform (National Environmental Education Advisory Council, 1996). Many resources to help school personnel rethink school grounds as places for learning are available, however. British publications in particular go beyond traditional

playgrounds, athletic fields, and even nature study to cover the entire range of curricula and grade levels. Allen Abend, director of Facilities Planning for the Maryland Department of Education emphasizes the “need to be thinking about how we can preserve or develop a rich, natural environment at every school that will be a resource to its educational program” (Coffee, 1999).

The National Environmental Education Act of 1990 of the U.S. called attention to how the natural environment could be included in curricula at every educational level. During the past decade, the U.S. Environmental Protection Agency (EPA) and various other public and private organizations have produced numerous resources for incorporating environmental education into the K–12 school curriculum.

### **2.3.3 Planning of School Grounds**

The design of the school and its setting should go hand in hand, but what has frequently happened in the past is that architects design the school buildings first and by the time the grounds are considered, there is little money left in the budget for landscape architects to work with teachers and pupils to create a stimulating outdoor landscape (Wells, 2000). Grounds and buildings should complement each other to provide a stimulating environment that influences the generations of pupils who receive their education there. The inspiration and enjoyment of the school landscape should give children the incentive and confidence to step out and investigate landscapes beyond the school gates, and equip them with the knowledge, attitudes and skills to meet wider environmental challenges. (Wells, 2000)

Brian *et al.* (1999), explain that the school grounds should appeal to the senses of sight, sound, smell and touch and should be able to cope with a range of personal preferences for enclosed and open spaces, for active and passive uses, and for formal, structured and 'wild' unstructured areas. In order to satisfy educational requirements, it is important not to determine what will happen in

every part of the site but to create a varied and flexible landscape that will afford many opportunities, some expected, and others not even envisaged.

The school grounds should be ever changing not static, stimulating not boring, welcoming not hostile, varied not bland. Although the reaction of visitors and the attitudes of neighbours are important, they should not predominate, but rather be reflected in the pattern of educational uses. Provided there is a landscape structure to create maturity and setting, change can be dynamic and ongoing, even to the extent of undoing or redoing earlier initiatives. The school building, its style, the materials from which it is built and its appearance all contribute towards the development of pupils' ideas and ideals about architectural quality and sense of place.(Brian *et al*, 1999)

#### **2.3.4 The Greening of Schoolyards**

Fortunately, there is a growing movement with schools in the Western world to transform parts of their schoolyards from barren areas of grass, asphalt, and wood chips with manufactured equipment into naturalized environments for children's exploration and play, which also supports classroom learning. One such program is Learning through Landscapes, set out in the 1980's to transform all the schoolyards in Britain to more natural spaces (Worth, 2003). Additional programs are underway in Canada (Evergreen Society), Australia (Learnsapes), Nova Scotia (Model Schools Project) Scotland and Sweden (Skolans Uterum) (Moore and Cosco, 2000). In the U.S., there is a growing natural schoolyard movement to reconnect children with nature. States, including Maryland, California, Ohio, Florida, New Hampshire, Utah and Vermont have initiated greening programs. Both Boston (Boston Schoolyard Initiative) and San Francisco (Green Schoolyard Alliance) have programs underway. These natural schoolyards include mini-forest, 'wild habitats,' ponds and streams, butterfly gardens, insects, animals and gardening areas. Many of these programs take the approach of using both place-based and project-based education to both integrate their naturalized schoolyards into the full curriculum and for environmental learning.

This makes the schoolyards extensions of the classroom where experiential learning through discovery and hands-on experiences with nature can take place both during and outside of classroom time (Sobel, 2004 and Malone and Tranter, 2003).

### **2.3.5 Naturalized Schoolyards**

The combination of both formal learning and informal, positive experiences in the naturalized environments were found most associated with the development of children's responsible behaviours (Fishman, 2001). A study of ten schools and a state-wide program by the National Environmental Education and Training Foundation (2000) in the United Kingdom, found that when schools use the context of local areas and naturalized schoolyards in their instructional practices, academic performance improves in reading, math, science, social studies and writing. A study of 40 schools in California that used the natural environment as "an integrated context of learning" with hands-on, project-based learning found that student performance improved in standardized test scores, grade point average, willingness to stay on task, adaptability of different learning styles and problem solving (Leiberman and Hoody 1998). Studies also show a reduction in anti-social behaviour such as violence, bullying, vandalism and littering, as well as a drop in absenteeism (Leiberman *et al.*, 1998).

## **2.4 OUTDOOR LEARNING**

Outdoor learning refers to learning modes or experiences that take place outside of the conventional classrooms. Outdoor learning activities could be fieldwork and outdoor visits, outdoor adventure educations, and school ground and community projects. Taylor (1991), terms it

as contextual learning which includes teaching methods more familiar than textbooks and lectures, such as group workshops, fieldtrips, hands-on experience, and the participation of parents and elders in instruction. Thus, children's outdoor learning is an environment that can afford children's motor skill activities, social interactions and cognitive activities. Children could benefit significantly from maximizing the environmental learning opportunities of the school grounds.

School grounds settings that provide opportunities for movement, investigation, concentration, and social interaction, will influence the messages children derived from their interaction within the educational setting, contributing to environmental learning, like their understanding of their place within the environment (Cohen and Trostle, 1990). This understanding subsequently develops their sense of place and belonging, through the appliance of shared culture of ownership and responsibility in the school grounds.

Outdoor education is a cultural construct which is thought about and applied in different ways within and between countries. For example, the European Institute for Outdoor Adventure Education and Experiential Learning identifies outdoor education as comprising "outdoor activities", "environmental education" and "personal and social development" (Fig 2.1).

The relationship between the three dimensions can be seen in the following model:



## THE RANGE & SCOPE OF OUTDOOR EDUCATION

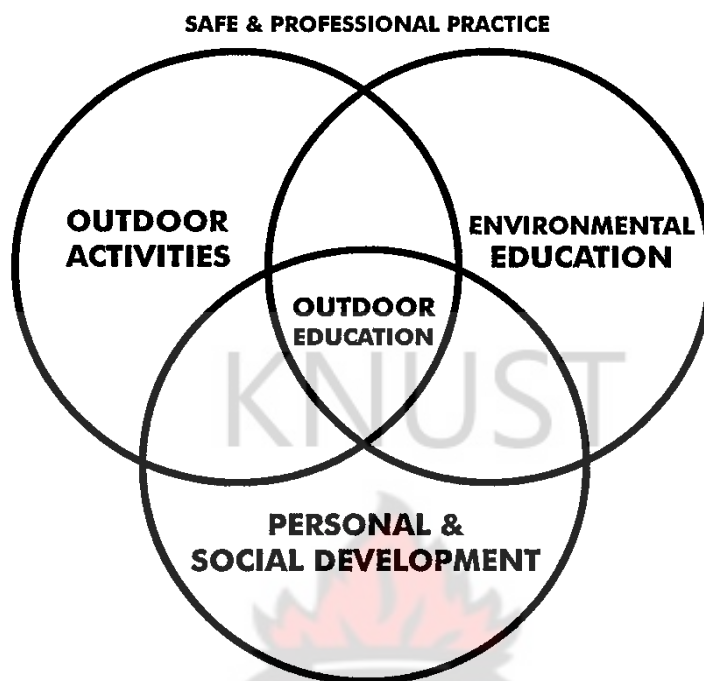


Fig 2.1 The Range and Scope of Outdoor Education  
Source: Higgins and Loynes (1997)

Further understandings can be developed through thinking about concepts such as: learning out of doors, outdoor learning, education out of doors, education in nature, authentic learning in landscapes, the outdoors: a learning environment.

These ways of thinking about outdoor education begin to reflect great diversity. Some of these differences are explained when looking at the setting in which outdoor education takes place. For example, teachers in an inner city school may want to make use of their school grounds, or nearby park or woodland, to pursue learning outcomes. Equally, teachers may have access to rural areas and pursue learning outcomes in wilder nature. If a teacher is trained in adventurous activities then she may want to pursue learning outcomes through these means in either urban or rural settings. Behind the diversity of approaches lie different theoretical understandings and practical applications of outdoor education. They will include ideas about the cultural and natural heritage,

ideas about 'a sense of place', and how to use the opportunities available to each teacher's particular situation (Higgins and Nicol, 2002).

What is common to these ideas is that the teacher and pupils pursue learning outcomes beyond the classroom. This is not to suggest that outdoor education is a better form of learning than class-based learning. It is to suggest that some learning is better suited out-of-doors and that there are good educational reasons for identifying and capitalizing on these opportunities. In this way class-based learning can be integrated with outdoor learning.

#### **2.4.1 Effort versus Performance**

There is evidence to suggest that there are educational benefits in setting students challenges which require significant effort on the part of the learner rather than simply being able to do something or not (Nicol, 2001). Many teachers make a point of rewarding the efforts made by students who try hard to achieve. This can be problematic in the case of some young people in contemporary school education where achievement is primarily measured through exam success. Adopting this theme, Rubens (1999) conducted qualitative research on links between outdoor education, adventure and learning, and set his findings in context through a comprehensive review of the educational and psychological literature. He argued that the current literature on motivation in learning suggests the value of a 'mastery' approach to learning and contrasts 'narrow' and 'broad' views of adventure. 'Narrow adventure' experiences are in essence activities which are short in duration and focus on high thrills, but require little effort on the part of the student who takes minimal responsibility for his or her actions. In outdoor adventure activities zip wires, ropes courses and abseiling may be cited as examples. He contrasts this with 'broad adventure which provides the converse, but most notably requires the student to take responsibility for their actions and sustain effort. Such activities are characterized by, for example, journeys by canoe or on foot.



Rubens (1999), made a strong case that ‘broad adventure’ encourages a mastery approach to education which leads to a willingness in students to take responsibility for their actions in later life. ‘Narrow adventure’ appears to have no such benefits, (Higgins and Nicol, 2002)

However, a great deal of anecdotal evidence suggests that the trend in outdoor education is towards the provision of short duration, high excitement experiences. Furthermore, such activities rarely involve real risk, but often emphasize apparent risk (Nicol, 2001 and Rubens, 1999).

#### **2.4.2 Facilitating Learning through Direct Experience**

As noted earlier a good learning experience may involve a wide variety of learning opportunities. At times one form of development may find more emphasis than others, but there is often the potential for intellectual, physical, emotional, aesthetic and spiritual development to take place. The mix will vary from individual to individual and from time to time (Higgins and Nicol, 2002). Children’s outdoor learning is enhanced by an environment that is richly resourced with exciting play materials and open-ended flexible resources that can be adapted and used in different ways, according to the needs and interests of individual children (Cohen and Trostle, 1990).

Outdoor learning is more effective when adults focus on what children need to be able to do there rather than identifying what children need to have. An approach that considers experiences rather than equipment, places children at the centre of the provision for outdoor learning and ensures that individual children’s learning and developmental needs are taken account of and met effectively. Effective practice outdoors involves providing opportunities for children in meaningful, engaging experiences that support their development in all areas of the curriculum (The Early Years Foundation Stage, 2007).

## **2.5 THE SCHOOL CURRICULUM AND THE LANDSCAPE**

Outdoor environmental education develops knowledge, attitudes and skills across the whole curriculum. It is knowledge about the environment and developing skills through going out in the environment which in turn creates the caring attitudes needed for the environment (Cohen and Trostle, 1990). Many aspects of the curriculum especially in science, geography, physical education and art can only be taught effectively through outdoor experience, and the school grounds are the obvious place to start. Teachers need the confidence to use this ‘outdoor classroom’. ‘In-service’ courses therefore are extremely valuable to give teachers the confidence and expertise to develop learning opportunities in the school grounds, ranging from growing and caring for plants to designing and making a solar powered fountain. (Cohen and Trostle, 1990)

### **2.5.1 Learning in the School Landscape**

Research on natural schoolyards is demonstrating the broad benefits this paradigm shift in schoolyard design and environmental teaching has in addition to the developmental benefits of offering children play and learning in naturalized environments. Children learn by constructing their own knowledge about the world, not by memorizing facts (Piaget, 1962). Harvard psychologist Howard Gardner said that scholastic knowledge “seems strictly bound to school settings,” while outdoor education fosters “connected knowing,” where education is part of, rather than separate from life (Gardner, 1991).

This section is a summary of the ideas and perceptions of the Learning through Landscapes research team, and their thoughts on the way in which curriculum subjects and cross curricular work can be supported by studies in suitably developed school grounds.

#### **A. Physical Education**

The subject most commonly associated with the use of school grounds is Physical Education, which has traditionally given strong emphasis to team games and athletics, using them to develop and extend the learning of physical skills, to encourage balanced physical development and to provide opportunities for the improvement of personal and social skills. In some instances 'fitness stations', 'trim' or jogging trails' have been established in school grounds with the aim of promoting good attitudes to health (Brian, *et al.*, 1999).

#### B. English

In English, the school grounds can provide rich language experiences which may be sensory and largely concerned with observation and may involve asking questions and undertaking investigations. There is scope within such experiences to use language purposefully and to arrange for the development of specific skills, such as group discussion and negotiation, oral and written reporting, and personal writing in poetry and prose (Brian *et al.*, 1999).

#### C. Mathematics

In Mathematics there is scope for both work content and practical activity, some of which will help pupils to understand concepts. To take one example, percentages (or fractions) can be understood through measuring the proportions of the grounds showing different characteristics, or by looking at the numbers of different types of trees. At a more advanced level, surveys of materials, living things or human behaviour in the grounds and the consequent analyzing of the data can help pupils to understand fundamental statistical concepts. There are also endless opportunities for measuring, estimating, and approximating. In some schools these investigations have become the basis of design work leading to development of the grounds. (Brian, *et al.*, 1999)

#### D. Geography

Geography aims to help pupils make sense of their surroundings and to gain a better appreciation of the variety of physical and human conditions on the Earth's surface and of patterns and processes. These aims can be achieved by studies in the locality of the school, beginning in the school grounds. The grounds provide opportunities to practice the skills of geography and to study environments in miniature. Activities can include the consideration of scale, variation in places and orientation, and following making maps and plans, the study of peoples, movement and their use of space. Concepts such as spatial organization and the change and shaping of the environment can be included (Brian *et al.*, 1999).

#### E. Art

A wealth of experiences in Art can be provided on even the most limited school site. Indeed Art can be a stimulus for developing the grounds. Pupils, staff, and parents, through the need to broaden the quality of the environment, can develop their own sensory awareness and creative skills.

Grounds can give opportunities for the expressive visual representation of a pupil's emotions and ideas, as a response to what has been seen. This may be through drawing, painting, printing, photography, sculpture or modelling, perhaps using material developed or produced in the grounds. The school and its grounds can provide for observation and judgment and the development of manipulative skills through a variety of media. These might include pencil, chalk, charcoal, paint and dyes, some of which may be derived from the grounds.

#### F. Music

Music skills can be developed outside. Natural or recycled materials can be used to make simple musical instruments, including drums and percussion instruments, reeds and pipes. It is possible to record sounds heard in the grounds and achieve the beginnings of simple musical notation.



Singing and music making can be novel and exciting in the outdoor environment. They might derive from a study of folklore, religious festivals or 'stately' occasions (Brian *et al.*, 1999).



Plate 1A: Some markings in school play grounds that can promote learning during play and support outdoor learning in the school landscape.

Indeed interdisciplinary learning can be promoted unconsciously simply with the design of play spaces as shown in Plate 1A, where counting(Mathematics), the cardinal points (Geography), the seasons of the year (General Knowledge) are and puzzles(Logical reasoning) have been turned into games for pupils. In this way, pupils learn while they play.

### 2.5.2 Pupils with Special Needs

All pupils can benefit greatly from work outside and pupils with learning difficulties gain particular advantage from outdoor practical experiences, which provide relevance to their work, which may be difficult to replicate in a classroom. Some of those who are not physically disabled but have learning difficulties have been found to gain confidence, learn well and become more settled through working in the outdoor environment (Worth, 2003). Experiences with animals, particularly larger livestock, have also proved to have a therapeutic effect upon children with emotional and behavioural difficulties (Brian *et al.*, 1999). Involvement in active learning through observation and participation and in design and change in the grounds are particularly effective activities with these pupils. A first principle in providing for those with physical disabilities concerns access, and this affects the design of the spaces, paths, pond-sides, entrances and structures such as hides. For example, raised beds for planting out specimens and studying their growth would be useful for those in wheelchairs. (Moore and Cosco, 2000)

### 2.5.3 Gifted Children

In a discussion paper on gifted children in comprehensive schools by Brian, *et al.* (1999), it was recommended that the science which is taught needs to be of an investigative nature, that able pupils should be given access to suitable resources, and that they need enriching experiences. In the same document it was suggested that gifted children studying geography should undertake wide-ranging investigations using a spread of resources including equipment for measuring and recording in the field. The grounds can be used to extend the learning experiences of pupils identified as highly gifted across a range of curriculum areas.



## 2.5 Children's Interaction with Nature

A growing body of literature shows that the natural environment has profound effects on the well-being of adults, including better psychological well-being, superior cognitive functioning, fewer physical ailments and speedier recovery from illness. Research is also providing convincing evidence of the more profound benefits of experiences in nature for children due to their greater plasticity and vulnerability (Wells and Evans 2003).

The findings indicate that:

- Children with symptoms of Attention Deficit Hyperactivity Disorder (ADHD) are better able to concentrate after contact with nature (Taylor *et al.*, 2001)
- Children with views of and contact with nature score higher on tests of concentration and self-discipline. The greener, the better the scores (Wells, 2000 and Taylor *et al.*, 2002).
- Children who play regularly in natural environments show more advanced motor fitness, including coordination, balance and agility, and they are sick less often (Fjortoft, 2001).
- When children play in natural environments, their play is more diverse with imaginative and creative play that fosters language and collaborative skills (Moore and Wong 1997).
- Exposure to natural environments improves children's cognitive development by improving their awareness, reasoning and observational skills (Pyle, 2002).
- Nature buffers the impact of life stress on children and helps them deal with adversity. The greater the amount of nature exposure, the greater the benefits (Wells, 2000)
- Play in a diverse natural environment reduces or eliminates bullying (Malone and Tranter, 2003).
- Nature helps children develop powers of observation and creativity and instils a sense of peace and being at one with the world (Crain, 2001).

## CHAPTER 3

### 3.0 METHODOLOGY

#### 3.1 STUDY AREA

The metropolitan area of Kumasi covers 254 square kilometres and is made up of 10 sub-metropolitan areas: Asawasi, Asokwa, Bantama, Kwadaso, Manhyia, Nhyiaeso, Oforikrom, Suame, Subin, and Tafo (Fig 3.1). The city's unique location—bordered on the north by Kwabre East District, Atwima District to the west, Ejisu-Juaben Municipal to the east and Bosomtwe to the south—makes it easily accessible to many migrants and sojourners with all major roads converging at the city centre, (Maoulidi, 2010). There are about 655 private and 431 public basic schools in the Metropolis, making 1086 basic schools in the Metropolis.

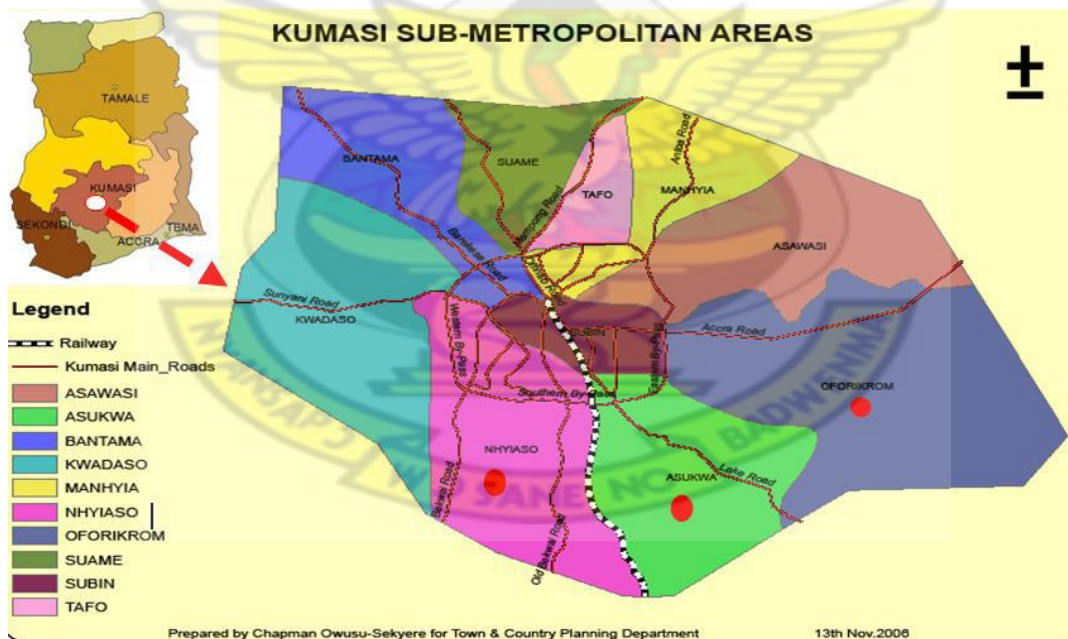


Fig 3.1 Map Showing the Sub Metropolitan Areas in The Kumasi Metropolis

Kumasi metropolis is the most populous district in the Ashanti region. The 2000 census, revealed Kumasi had a population of 1,170,270. MCI projects that the 2010 population is 1,634,899.5

However, the city's daytime population rises to more than 2,000,000, given the many hundreds who travel to the city each day for work and then return to their homes often far away, at night.

### **3.2 STUDY METHODS AND DESIGN**

The Study employed both qualitative and quantitative techniques of data collection. The Quantitative method involved the use of structured questionnaires with closed ended questions to gather views of respondents, while the qualitative methods included the use of an interview guide to elicit the views of respondents, the use of grounds assessment form to assess the state of school grounds and photographs taken for visual assessment.

#### **3.2.1 Data Collection Techniques**

Structured questionnaires were used to elicit views of Head teachers, teachers and pupils on the major areas of the study. Activities on the school compounds were also observed during lesson times and break times. Pictures were taken on the school grounds to help in analysing their landscapes in order to make relevant recommendations. BECE results of ten schools selected on the basis of their landscapes were also collected from the West African Examination Council.

#### **3.2.2 Sampling Techniques**

Basic Schools in the Kumasi Metropolis were grouped into Private and Public Basic Schools. The Sub Metropolitan areas were also grouped into endowed and less endowed areas. Using the stratified random sampling method, 100 basic schools were selected for this study. 50 public schools were selected in all by randomly selecting 25 schools from three deprived sub-metros and 25 schools from two endowed sub-metros. The remaining 50 schools were private schools. 25 of

which were from two deprived sub-metros and the last quarter of the schools from three endowed sub-metros. A head teacher, two teachers and two pupils were interviewed in each school for the study. A total of 500 hundred respondents were interviewed from the 100 basic schools in the Kumasi Metropolis. Ten schools were selected for an assessment of the state of their landscapes as against their BECE results. Five of the schools had good landscapes while the other five had very poor or no landscapes. (Table 4.0)

Table 3.0 Distribution of Study Participants

	<b>Private Schools 50</b>		<b>Public Schools 50</b>		
Respondents	<b>Endowed Sub Metro</b>	<b>Less Endowed Sub Metro</b>	<b>Endowed Sub Metro</b>	<b>Less Endowed Sub Metro</b>	<b>Total</b>
Head teachers	25	25	25	25	100
Teachers	50	50	50	50	200
Pupils	50	50	50	50	200
Total	125	125	125	125	<b>500</b>

A total of hundred Head teachers, two hundred teachers and two hundred pupils participated in the study from a hundred Basic School, in the Kumasi Metropolis.

### 3.2.3 Instruments

This study gathered data primarily using four types of instruments:

#### 1. Head Teachers and Teachers Questionnaires

Structured questionnaires were used to elicit views of head teachers and teachers on the benefits derived from landscaping school grounds, the academic use of school grounds, the state of their school grounds, outdoor learning and if they practice it, and the potential of the school grounds to support teaching and learning when properly landscaped.

## 2. Pupils' Interview schedule

Interview guides were used to distil the views of pupils on the state of their school grounds and outdoor learning in their schools.

## 3. School Grounds Assessment Form

A grounds assessment form was used to assess the state of school grounds under following headings and criteria;

Table 4.0 Criteria for School Grounds Assessment

Table 4.0 was designed using information from various literature on landscape design to serve as a guide for the grounds assessment. This was done to help bring objectivity in the assessment of grounds across board rather than using a simple visual Survey.

<b>ENTRANCES</b>	
Sign Board	<ul style="list-style-type: none"><li>• Should be well positioned or oriented to indicate the exact location of the school</li><li>• Information on the board should be well arranged with clear diction</li><li>• Should be big enough for people to see and read from a distance of about 10m</li></ul>
Gate	<ul style="list-style-type: none"><li>• Should be strong enough to keep pupils in the school during school hours and intruders outside after school and off school days.</li><li>• Should be well painted and presentable</li></ul>
Security	<ul style="list-style-type: none"><li>• Presence of a security personnel at the entrance is very appropriate</li><li>• Fencing in the form of a brick wall, wire mesh, tall hedges and wooden fences that are strong or compact enough to keep intruders outside should be provided.</li></ul>
<b>CARPARKS</b>	
Surfacing	<ul style="list-style-type: none"><li>• Should have an even surface which is flat or with a gentle slope</li></ul>



	<ul style="list-style-type: none"> <li>• Appropriate finishes like pavements, gravels and bitumen should be used.</li> </ul>
Shade	<ul style="list-style-type: none"> <li>• The availability of shade on the car park such as shade trees or other shading structures for car parks</li> </ul>
Design	<ul style="list-style-type: none"> <li>• Must be well demarcated to allow orderly parking</li> <li>• Must have clear entry and points</li> <li>• Must be spacious enough to allow turning around when leaving the car park</li> </ul>
<b>ASSEMBLY GROUNDS</b>	
Surfacing	<ul style="list-style-type: none"> <li>• Should have a strong material that can withstand trampling such as pavement.</li> <li>• Should have an even surface and uniform slope if any.</li> </ul>
Size	<ul style="list-style-type: none"> <li>• Should be large enough to hold a gathering of the entire population pupils and staff.</li> </ul>
Design	<ul style="list-style-type: none"> <li>• Should have a flag post and a platform/ stage or any elevated surfacing for addressing the assembly.</li> <li>• Shade should be made available where possible to shield users from excessive sun.</li> </ul>
<b>MARKET/ CANTEEN</b>	
Structures	<ul style="list-style-type: none"> <li>• Well organized indoor or outdoor environment that are comfortable and hygienic for the pupils and staff.</li> <li>• If the market or canteen is an outdoor area there should be enough shade for the pupils.</li> <li>• Clean water should be available with washing basins.</li> </ul>
Seating	<ul style="list-style-type: none"> <li>• There should be enough seats and tables for pupils to use at the canteen.</li> </ul>
Neatness	<ul style="list-style-type: none"> <li>• General appearance of the market or canteen should be neat, free from rubbish and dirty water.</li> <li>• Drains if any should be clean.</li> </ul>
<b>PLAYING FIELD</b>	
Surfacing	<ul style="list-style-type: none"> <li>• It should have an even surface with no erosion</li> <li>• It should have a well maintained turf</li> </ul>
Nature	<ul style="list-style-type: none"> <li>• It should be a flat area with a minimal slope, if any</li> </ul>
Design	<ul style="list-style-type: none"> <li>• The appropriate markings for football, volley ball or any other sport for which the field is provided should be well done on the field</li> <li>• Structures such as goal posts, volleyball nets should also be provided.</li> </ul>



<b>REFUSE MANAGEMENT</b>	
Structure	<ul style="list-style-type: none"> <li>• There must be an incinerator to hygienically burn refuse when collected</li> </ul>
Collection	<ul style="list-style-type: none"> <li>• There should be enough dustbins in the school to encourage proper waste disposal among staff and pupils</li> </ul>
Location	<ul style="list-style-type: none"> <li>• Refuse dumping sites and incinerators should be located out of public view or hidden from open view</li> <li>• It also should also be located far enough such that the smell or odour does not disturb the school.</li> </ul>
<b>GENERAL APPEARANCE</b>	
Beautification	<ul style="list-style-type: none"> <li>• The general aesthetic appeal of the school grounds was considered.</li> <li>• The use of shrubs, flowering and foliage plants to beautify the school was also considered.</li> </ul>
Circulation	<ul style="list-style-type: none"> <li>• There should be walkways between blocks in the school to guide movement on the compound</li> </ul>
Erosion Control	<ul style="list-style-type: none"> <li>• There should be proper erosion control measures on the grounds especially on steep slopes.</li> </ul>
Shade	<ul style="list-style-type: none"> <li>• There should be enough shade trees on the school compound.</li> </ul>

#### 4. Survey Pictures on the School Grounds

Pictures were taken on the school grounds to help in analysing their landscapes in order to make relevant recommendations. Activities on the school compounds were also observed during lesson times and break times.

### 3.3 ANALYSIS OF DATA

Data collected using questionnaires were analysed using SPSS version 17. Assessment of assessment of the schools grounds was also done using SPSS version 17.

### 3.4 LIMITATIONS OF THE STUDY

The following were the limitations encountered during the study;

- The unwillingness of some Head teachers to give permission for the study to be conducted in their schools.
- The reluctant attitude of some head teachers to answers questionnaires even though they allowed pupils to take part in the study
- Too much bureaucracy in some schools which prolonged the data collection process.



## CHAPTER FOUR

### 4.0 RESULTS

#### 4.1 PERIOD IN OFFICE (HEAD TEACHERS)

Out of the hundred Head teachers who took part in the study, 52% have been in office for up to five years. 38% of them have been heads of their schools for 6 to 10 years, while 10% of them have served for more than 10 years. (Table 4.1)

Table 4.1 Number of Years Head Teachers Had Been in Office

Years	Private	Public	Total
1-5 years	30%	22%	52%
6-10 years	10%	28%	38%
More than 10	10%	0%	10%
Total	50%	50%	100%

Source: Field Survey Data, 2011

#### 4.2 YEARS IN TEACHING

The majority (80.5%) of the teachers who participated in the study had been teaching in their schools for up to five years, while only 5% of them had taught in the schools for more than ten years. More than 14% have however been at post for between 6 to 10 years. (Table 4.2)

Table 4.2 Number of Years Teachers Have Taught in Their Schools

<b>Years</b>	<b>Private</b>	<b>Public</b>	<b>Total</b>
1-5years	40%	40.5%	80.5%
6-10 years	8%	6.5%	14.5%
More than 10	2%	3%	5%
Total	50%	50%	100%

Source: Field Survey Data, 2011

#### 4.2.1 Classes Taught

The data indicates that most (90%), of the teachers taught through the upper primary level to the junior high school, that is Basic 4-6 and Basic 7-9. 10% teach at the lower primary level.(Table 4.3)

Table 4.3 Classes the Teachers are Teaching in The Schools

<b>Class</b>	<b>Private</b>	<b>Public</b>	<b>Total</b>
Basic 1-3	5%	5%	10%
Basic 4-6	24%	23%	47%
Basic 7-9	21%	22%	43%
Total	50%	50%	100%

Source: Field Survey Data, 2011

Figure 4.0 shows the various subjects taught by teachers in the selected schools. Most (104) of the teachers taught mathematics followed by English Language with 97 teachers. French teachers were the least (11) in number.

#### 4.2.2 Subjects Taught

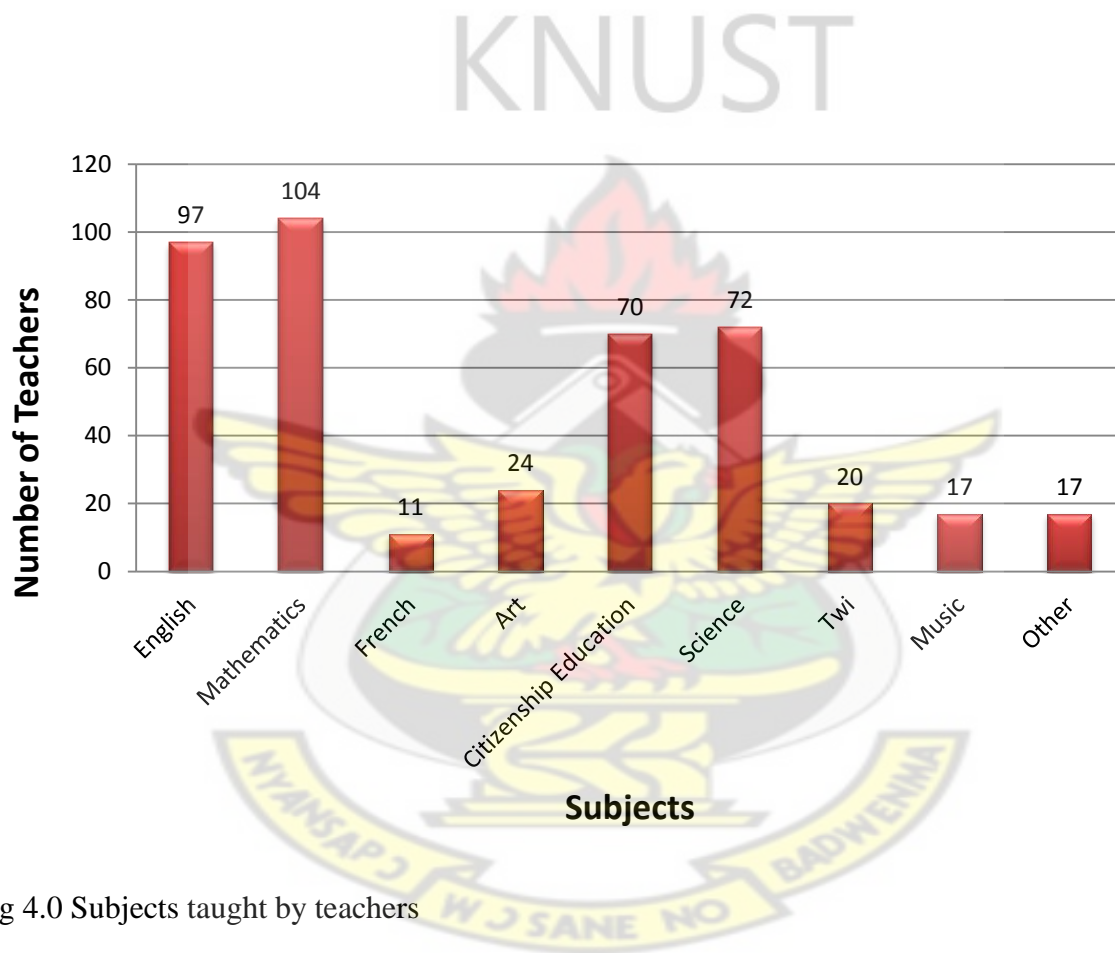


Fig 4.0 Subjects taught by teachers

#### 4.3 STATE OF SCHOOL GROUNDS

Data collected on the school grounds covered all aspects of the grounds such as entrances, assembly grounds, car parks, markets or canteens and the school fields. The general appearance of

the schools in terms of aesthetics and their waste management facilities were also considered. Aspects such design, surfacing, size and shading were used in assessing the school grounds.

#### 4.3.1 Entrances

Figure 4.1 is a graphical representation of the state of grounds in the Basic Schools, 35% of the Basic Schools did not have any entrances while out of the 65% which had entrances, 27% are poor and 12 % are in a very good state.

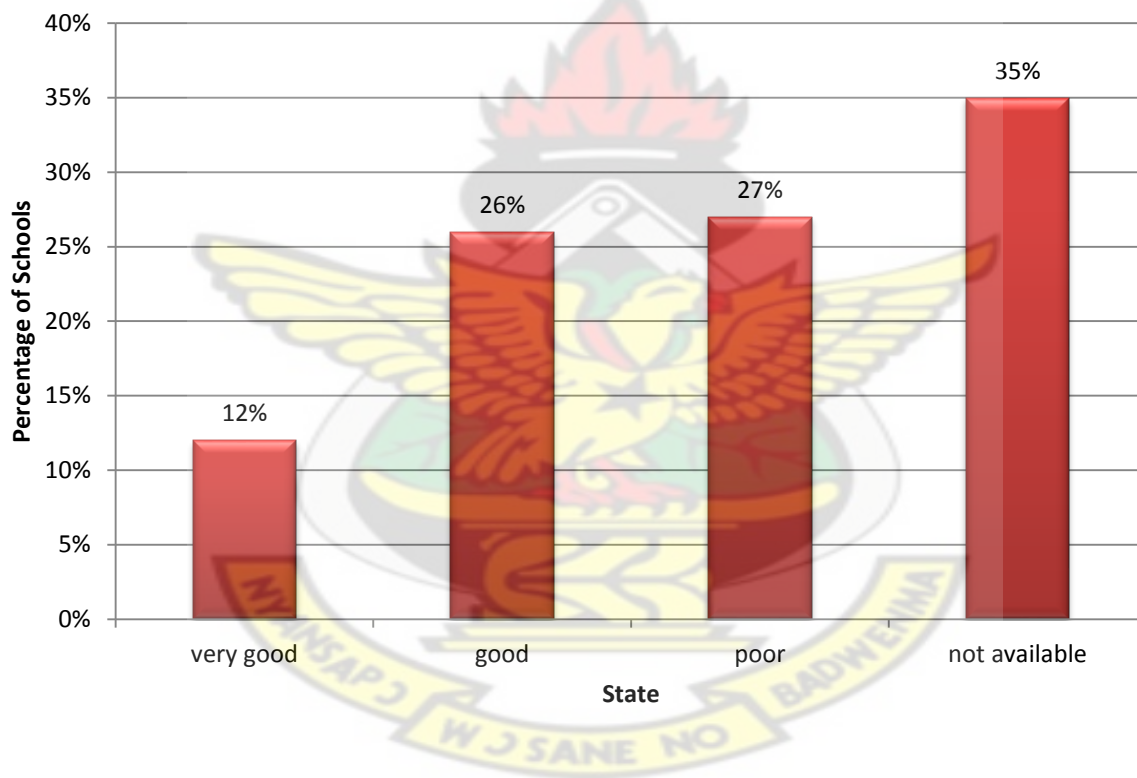


Fig 4.1: State of entrances in selected Basic Schools

Plate1 show entrances of selected which are considered good because they have visible and well sited, walls for protection and security and a gate is the main entrance of the school. Whiles plate 2 shows schools with poor entrances because they lack any definite boundary or wall, there are no gates or entrances as they are now.





**Plate1: Some good entrances of some Basic Schools in the Kumasi Metropolis**



**Plate 2: Some Basic Schools without entrances.**

### 4.3.2 Car Parks

Fig 4.2 shows Majority (63%) of Schools did not have car parks. 37% had car parks, out of this number , 30% of the car parks were in a good state with 4% are poor in conditions.

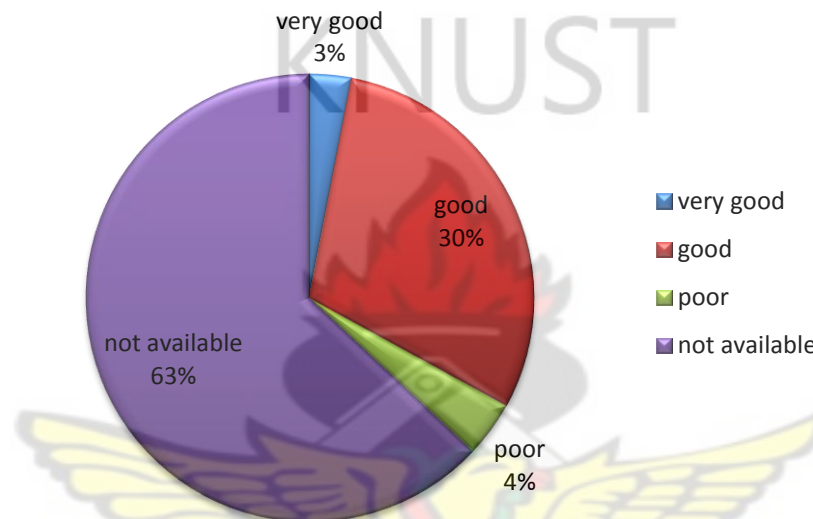
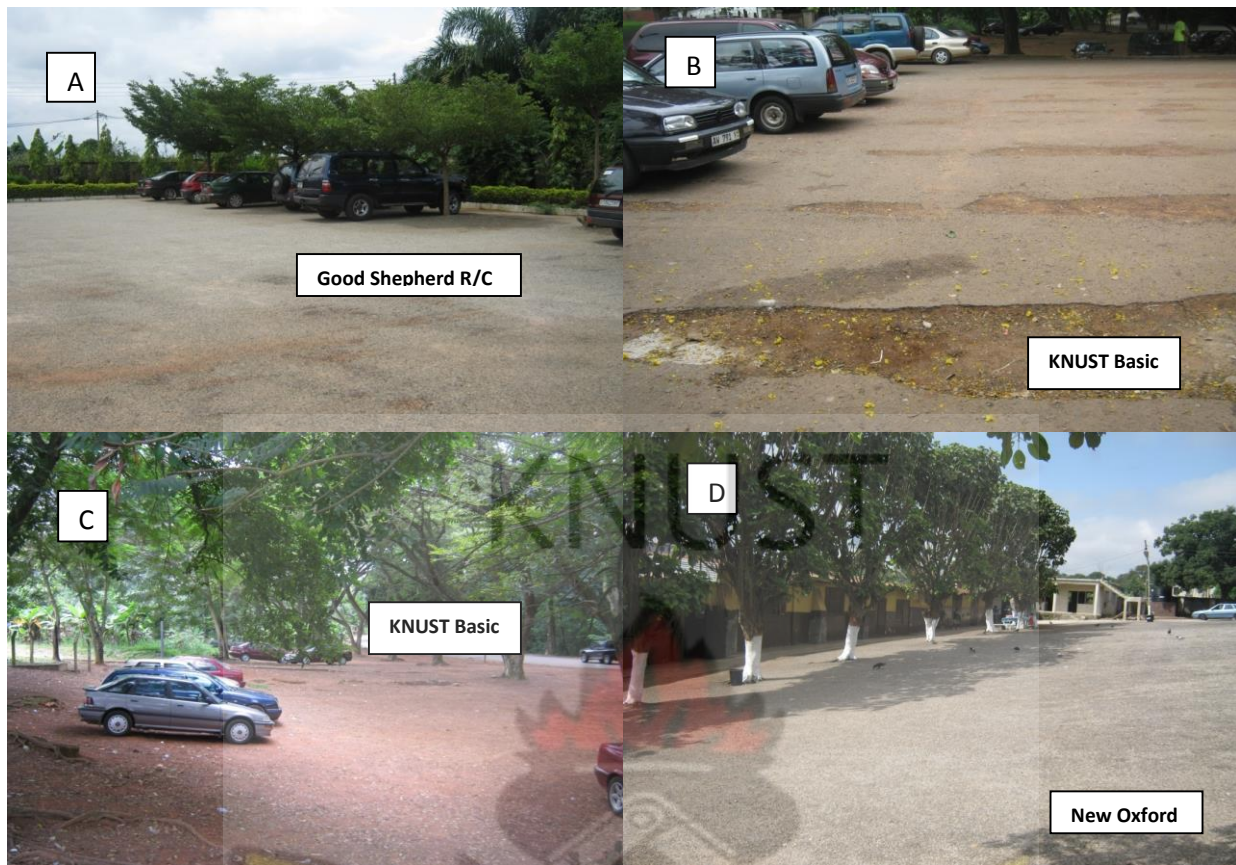


Fig 4.2: State of Car Parks in Selected Basic Schools in the Kumasi Metropolis

Plate 3 shows the car parks of some schools in the Kumasi Metropolis. (A) and (D) were considered to be good because they were well levelled and had a good surface finished of bitumen and gravels. The car park in (C) was bare soil and was eroded at some parts while (B) was in a poorly maintained state even though it was covered with bitumen





**Plate 3 : Car Parks of some Basic Schools in the Kumasi Metropolis**

#### **4.3.3 Assembly Grounds**

An assessment of the assembly grounds in the Basic Schools revealed more than 50% were in a poor state and 32% were good (Fig 4.3). Plate 4 shows examples of the various assembly grounds encountered. Erosion was a major problem in most cases as can be seen in (A). the assembly ground in (B) and (D) were some of those considered good due to the space available and the nature of the grounds. Shade for assembly ground was non-existent in most schools.

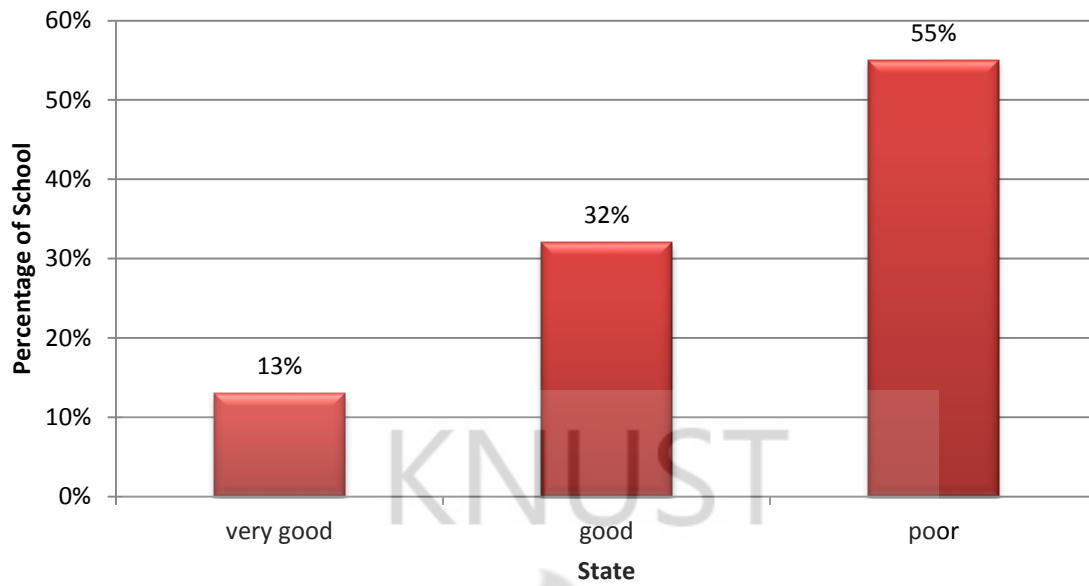


Fig 4.3: State of Assembly Grounds

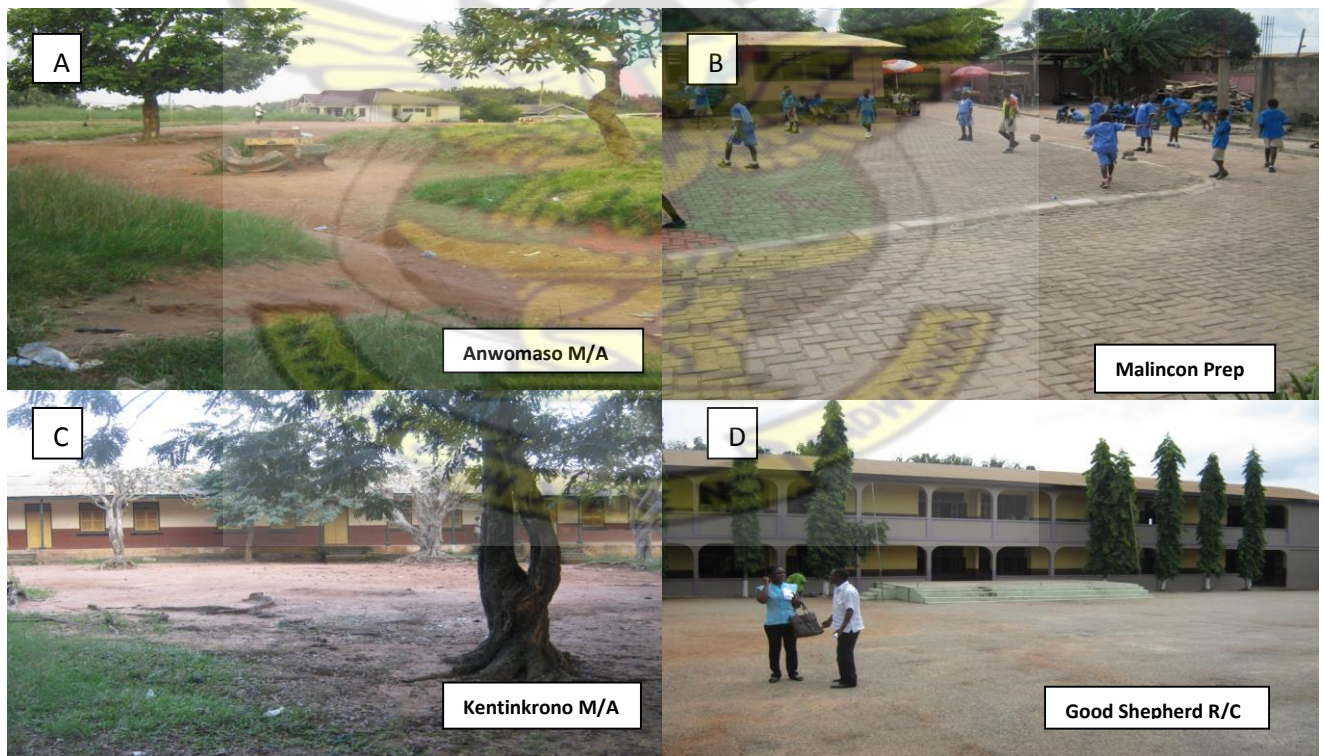


Plate 4: State of Some Assembly Grounds in Basic Schools of the Kumasi Metropolis



#### 4.3.4 State of Market/ Canteen

All schools visited had a market or can in or near the school. Out of the total number only 27% could be assessed to be good enough while the greater majority were in a poor state (Fig 4.4)

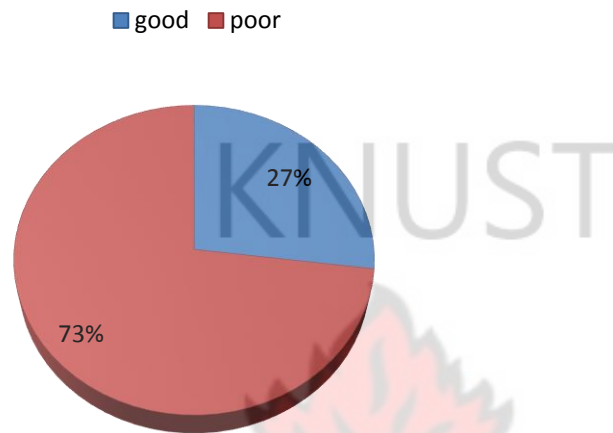


Fig 4.4: The State of Canteens and Markets



Plate 5: Views of some Canteens /Markets in Some Basic Schools

School canteens did not have any sitting areas for pupils when they buy their food and even the structures in which the foods were sold were also in very poor states. (Plate 5)

#### 4.3.5 Playing field/ playground

In Fig 4.5, 38% out of 100 schools did not have school fields. Out of the 62% of the schools which had the school fields, most of them were poor while only a few looked good.

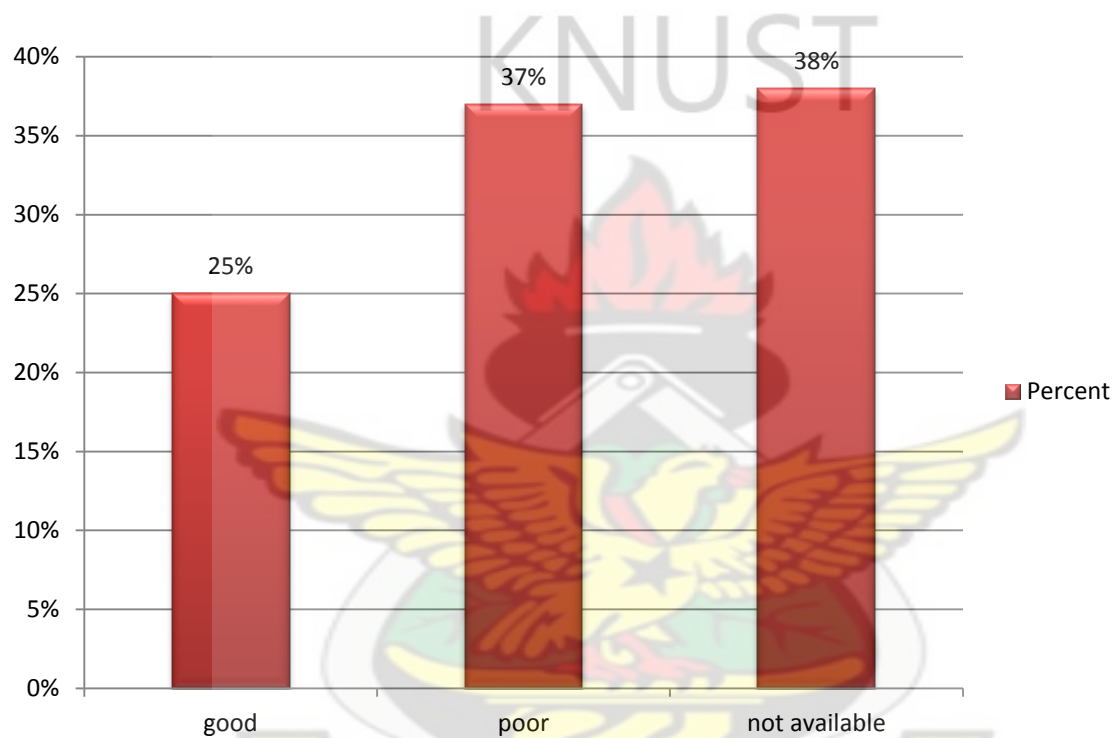
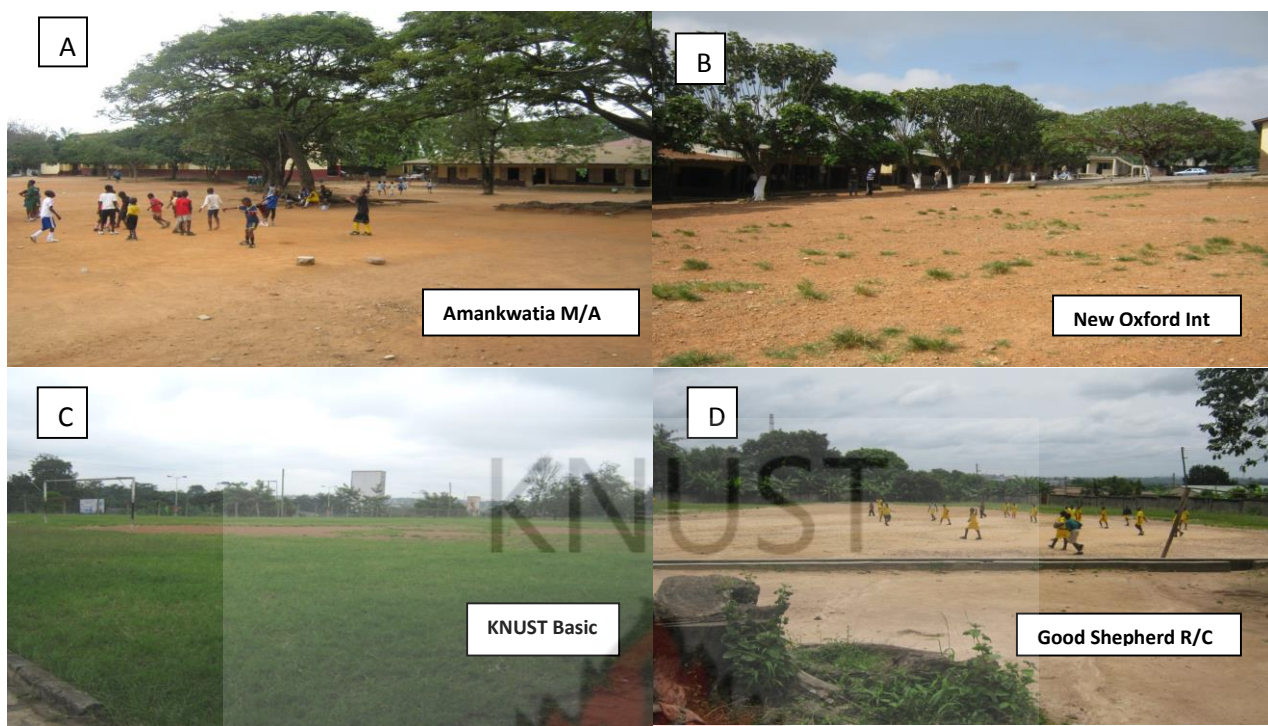


Fig 4.5 State School Fields

In plate 6, schools (A), (B) and (D) show the poor state of most of the playing fields found in schools. The fields are bare, stony and undulating in some areas. There are no form of markings to indicate posts or any of such. (C) however shows some grass on the playing field in that school but even with that there were still some bare patches.

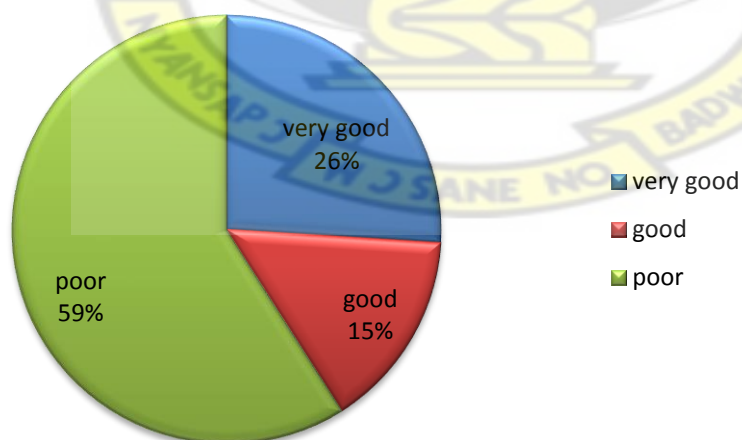




**Plate 6: Some school Fields of Basic Schools in the Kumasi Metropolis**

#### 4.3.6 Waste Disposal

The assessment revealed that most (59%) Basic schools have poor waste disposal facilities. 26% are very good and 15% have good waste disposal systems (Fig 4.6).



**Fig 4.6 Waste Disposal in Basic School**

### 4.3.7 General Appearance

Figure 4.7 shows the general appearance of the school grounds from the grounds assessment and the opinion of Head teachers and teachers. The grounds assessment shows that in most cases (59%) the grounds are poor while the opinion of head teachers and teachers suggests that most (76% and 48.5%) of the grounds are in a good state. Some (7%) Head teachers were however of the view that their school grounds are in a poor state.

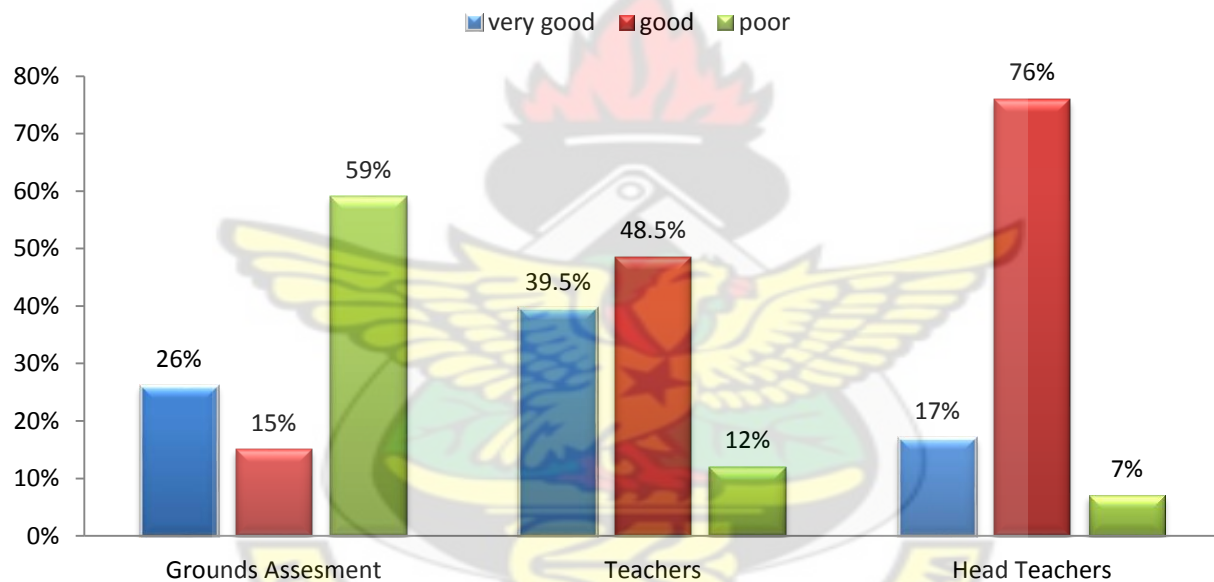


Fig 4.7 General Appearance of School Grounds

In Plate8 the general appearance of some schools are shown. (A), was considered as one of the schools with very good appearances. While (C) and (D) were good and B was poor. (A), has lawns and paved areas, and well demarcated patterns of circulation. (C) and (D) have good shade trees and hedges that guide movement on the compound, but erosion was evident in B.





**Plate 7: General Appearance of some Basic School's grounds 1**

#### **4.3.8 Areas that Need Improvements**

Data on the need to improve school landscapes indicated that majority of pupils showed much interest in ornamentals and play equipment. Most head teachers considered the lawns as an area that needs improvement, while most teachers were concerned about paving and fencing around the school. (Fig 4.8)

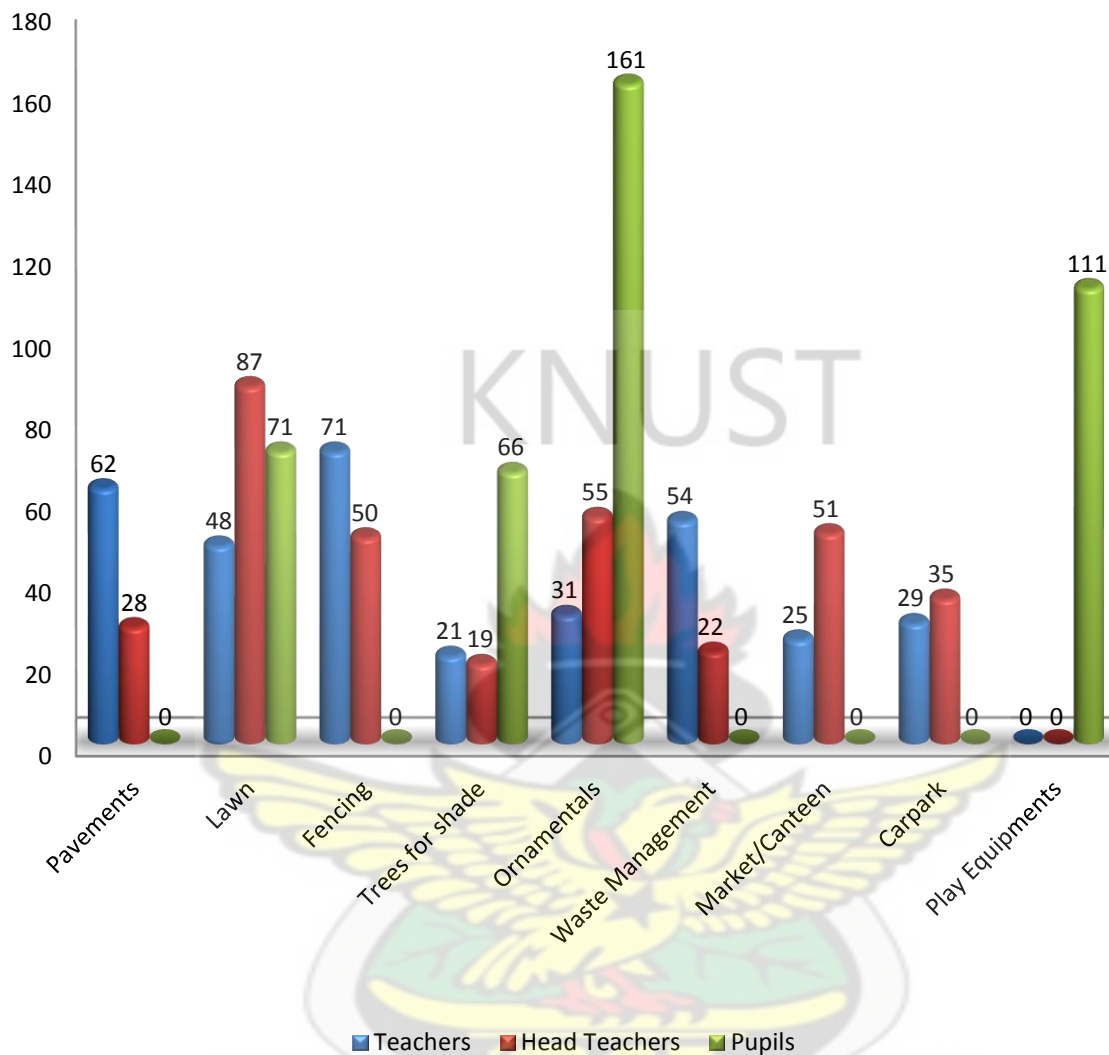


Fig 4.8 Areas of the school landscape that need improvement

#### 4.4USE OF SCHOOL GROUNDS

The data in table 4.4 shows that majority (70.5%) of pupils play comfortably in their school grounds. The remaining 29.5% however indicated issues such as the grounds being too stony and rough (18.5%), no playing field (9%) and little or no grass (3.5%).

#### 4.4.1 Play and Recreation

Table 4.4 Pupils Opinions on the Use of School Grounds for Recreation

Condition	Frequency	Percent
little or no grass on the compound	7	3.5%
little or no shade	2	1.0 %
too stony/rough	37	18.5 %
no playing field	9	4.5 %
Other	4	2.0%
can play comfortably	141	70.5%
Total	200	100%

Source: Field Survey Data, 2011

#### 4.4.2 Teaching and Learning

When Head teachers and teachers gave their opinions on whether their school grounds are conducive for teaching and learning, majority, that is, 82% and 70% respectively, indicated that it is conducive. A few of them (18% and 20%, respectively) however, indicated that their grounds were not conducive and 5.5% of the teachers were not sure if the school grounds were conducive for teaching and learning (Fig 4.9).



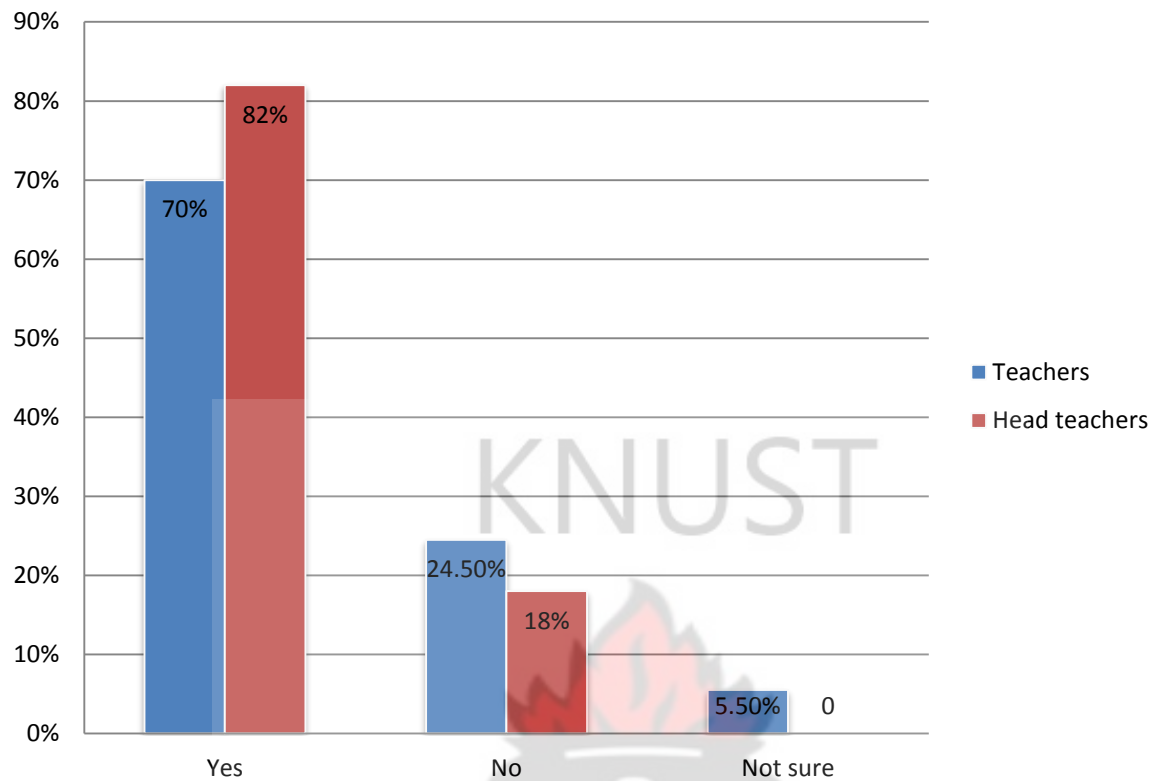


Fig 4.9: Views on Whether School Grounds Are Conducive For Teaching and Learning

## 4.5 OUTDOOR LESSONS

### 4.5.1 Acceptance and Permission

In Fig 5.0 head teachers were asked to indicate whether they permit teachers to have some lessons outside the classroom. 83% said yes and 17% said no. Out of the 17% of head teachers who do not allow outdoor learning activities, 10% indicated that they preferred the classroom, while 7% of them felt that the pupils would be distracted. When asked to assess these outdoor lessons all 83% the head teachers indicated that the lessons were very interesting and productive.

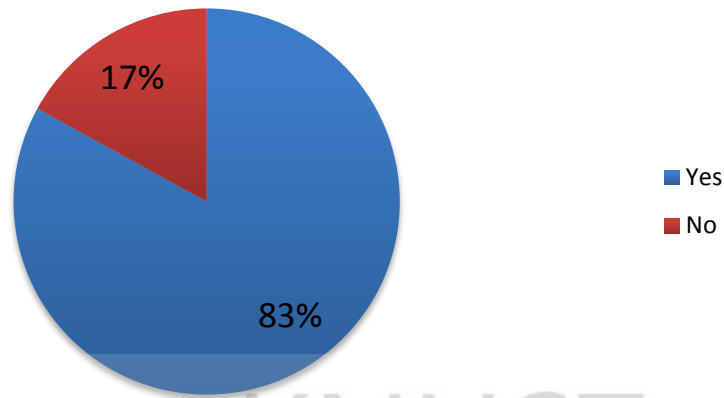


Fig 5.0 Head Teachers' Responses on Allowing Outdoor Learning in Schools

#### 4.5.2 Involvement of Teachers

When teachers were asked if they took their pupils out for outdoor lessons, 57% did not have any lessons outside the classroom. 43% of them indicated that they had outdoor lessons (Fig 5.1) and their assessment can be found in Table 4.5

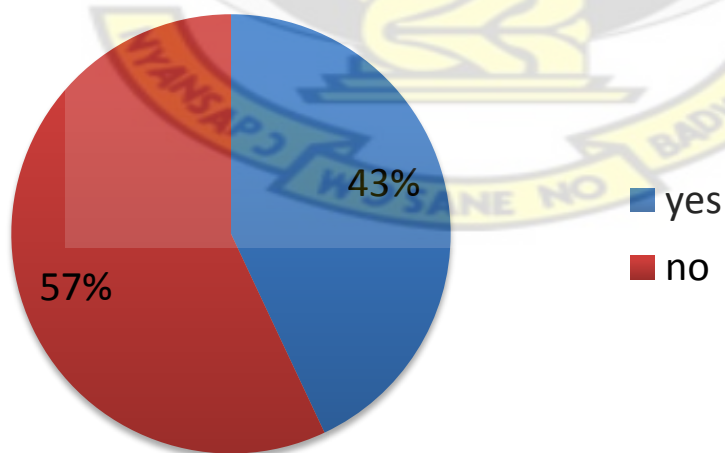


Fig 5.1 Involvement of Teachers in Outdoor Lessons

#### 4.5.3 Assessment of outdoor lessons

31% of teachers felt outdoor lessons are very interesting and productive, 9% said it was the same as being in the classroom while 3% felt it was not productive.(Table 4.5)

Table 4.5 Assessment of Outdoor Lessons in Schools

Response	Frequency	Percent	Cumulative Percent
Very interesting and productive	62	31.0%	31.0%
Same as being in the classroom	18	9.0%	40.0%
Not productive	6	3.0%	43.0%

Source: Field Survey Data, 2011

Table 4.6 shows responses of teachers who did not involve pupils in outdoor lessons .22% of the teachers did not have outdoor lessons because it was not necessary for their subject, and 11% said it is too tedious to organize. 25% of them just preferred the classroom for every lesson and 2% indicated that it was not in their curriculum so they did not do it.

Table 4.6 Teachers' Reasons for not having any Outdoor Lessons

Response	Frequency	Percent	Cumulative Percent
Not necessary for my subject	44	22.0%	22.0%
Too tedious	22	11.0%	33.0%
Prefer the classroom	50	25.0%	58.0%
Not in the curriculum	4	2.0%	60.0%

Source: Field Survey Data, 2011

When pupils were asked if they do have some lessons outside their classroom, 67% of them indicated that they did, while 33% of them said they had never had any outdoor lessons. This data excludes physical Education because it is mostly done outside the classroom. Out of the 67% of pupils who had ever had outdoor lessons, 43% felt they went very well, 21.5% said it was just ok and 2.5% felt it did not go down so well for them. (Table 4.7)

Table 4.7 Pupils Appreciation of Lessons outside the Classroom

<b>Responses</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>Very well</b>	43.0%	43.0%
<b>Just okay</b>	21.5%	64.5%
<b>Not so well</b>	2.5%	67.0%
<b>Not done</b>	33.0%	100.0%

Source: Field Survey Data, 2011

#### 4.5.4 Relevance to the Curriculum

Head teachers were asked to comment on the relevance of outdoor learning activities to the school curriculum and 94% were of the view that it is relevant, but 6% of them felt it was not. (Fig 5.2)

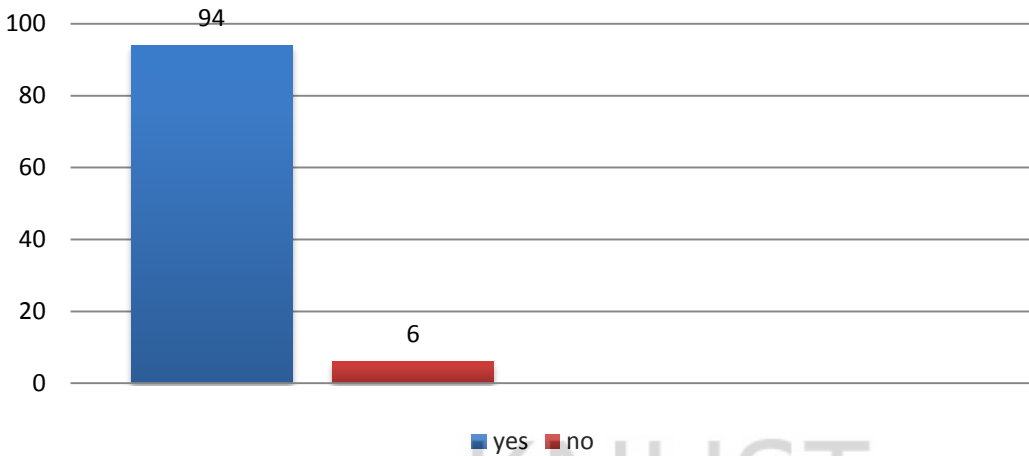


Fig 5.2: Head Teachers Responses on Relevance of Outdoor Lessons to the Curriculum

#### 4.6 BENEFITS OF LANDSCAPING SCHOOL GROUNDS

Fig 5.3 is a representation of the views of Head teachers and teachers on the benefits of landscaping Basic Schools. Most Head teachers were of the view that beautification (90%), shading and heat control (83%), conducive environment for outdoor activities (79%) and enhancement of the schools image (80%), were benefits of landscaping Basic Schools.

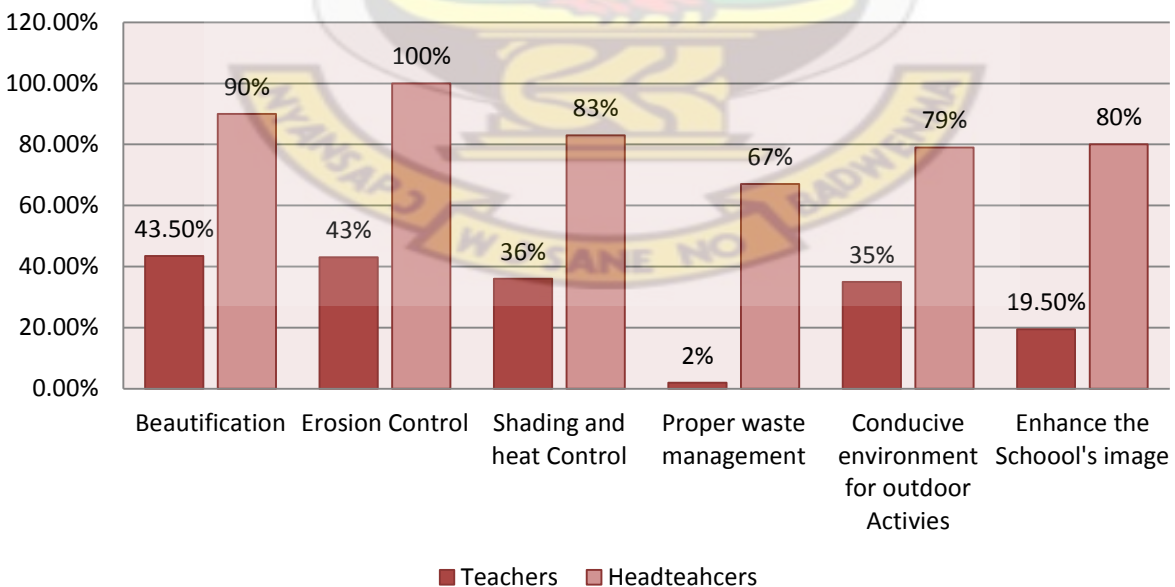
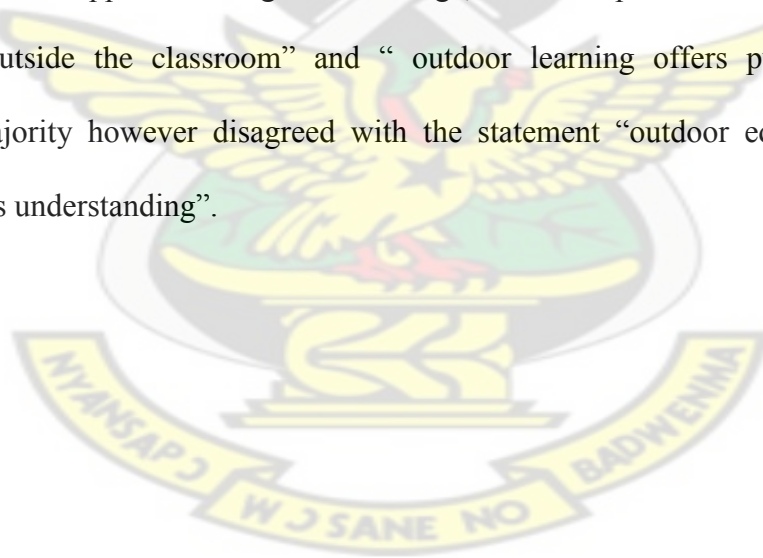




Fig 5.3: Opinions on the Benefits of Landscaping Basic School Importance of Landscaping Basic Schools

All head teachers said erosion control was a benefit of landscaping schools. Fewer teachers on the other hand were of similar opinions with only 2% and 19.5% selecting proper ‘waste management’ and ‘enhance the school’s image’ respectively.

Teachers were asked to agree, disagree or stay neutral about the statements in Fig 5.4. The Figure shows high agreement levels with most of the statements. Majority of teachers Agreed with statements like “A well planned outdoor environment that is carefully designed and thoughtfully managed can be used to deliver many aspects of the curriculum”, “ the school grounds can be designed to promote learning among pupils even when they are playing”, “ the school grounds can be better managed to support teaching and learning”, “ some aspects of the curriculum can be better handled outside the classroom” and “ outdoor learning offers pupils new learning experiences”. Majority however disagreed with the statement “outdoor education leads to a lowering of pupils understanding”.



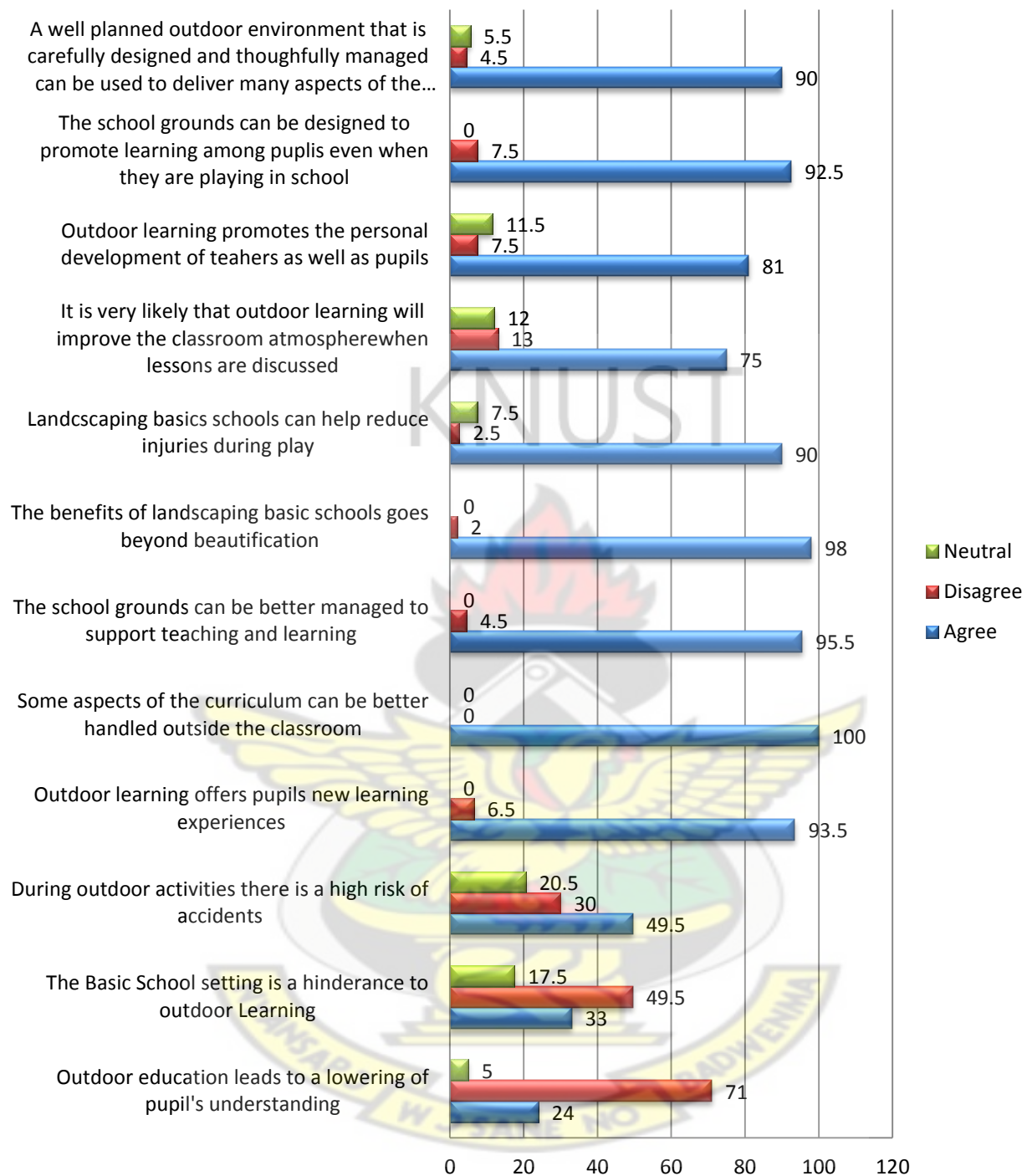


Fig 5.4 What Basic School teachers in the Kumasi Metropolis think about the school landscape in relation to teaching and learning, Relative (%) agreement and disagreement with the questionnaire statements(n=200)

#### 4.7 EFFECT OF LANDSCAPING ON ACADEMIC PERFORMANCE

Fig 5.5 represents BECE results of ten schools out the total of the hundred, selected on the basis of their landscapes. The results cover a period of five years (2007 to 2011) for each school and the data represents the average aggregates per school per year. The schools with asterisks against their name have good landscapes while those without it have poor or no landscapes. The higher, Average aggregate the poorer the results for that school in that year and vice versa. The data shows that schools with good landscapes recorded lower aggregates and therefore better results in each of the years under consideration as compared to schools with poor landscapes. the schools with good landscapes recorded aggregates between 6 and 24 while those with poor landscapes had aggregates between 21 and 33.

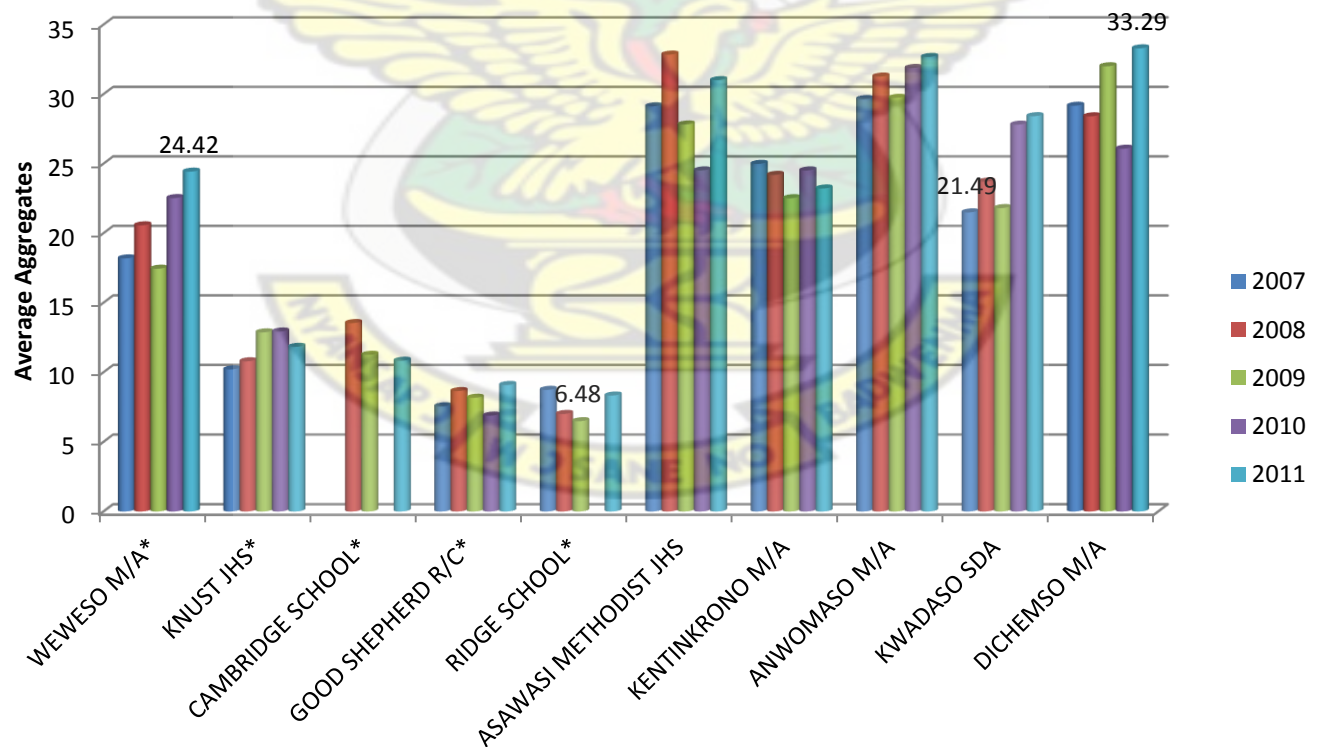


Fig 5.5 Effect of Landscaping on Academic Performance

## **CHAPTER 5**

### **5.0 DISCUSSIONS**

#### **5.1 STATE OF LANDSCAPES IN BASIC SCHOOLS**

##### **5.1.1 Entrances**

Most people are bound to form their first impressions of a school from the schools entrance therefore making it a very important part of the school. A child's impressions of the schools as a place, as they approach the entrance can also affect their desire to be in school. Though fences provide security, most public schools within the study area did not also have any form of fence around the schools, exposing the pupils to the harsh environment outside the schools. This situation also makes it easy for pupils to stay out beyond break times since it was observed in some schools that pupils have to cross the road to buy food and did not hear the break-over bell when it was rang.

##### **5.1.2 Car parks**

While some car parks have been well pave, Most are simply bare and some are badly eroded. The issue of car parks did not seem to be of much importance to the schools at this level. This could be as a result of the fact that not many teachers have cars. This assertion could be valid since throughout the study period, not many schools had cars on their premises even though teachers were in school, teaching. This also reflected in the responses they gave. In spite of this car parks add to the image of the school and become very important when there are functions like PTA meeting and Speech and Prize giving days when parents and dignitaries come to the schools in their numbers.

### **5.1.3 Assembly Grounds**

Most of the very good ones are found in private schools where most parts of their grounds were paved and their compounds are comparatively smaller. Paving the entire school compound could however result in heat build-up in the afternoons leading to higher temperatures in the classrooms which will cause discomfort to both teacher and pupils. This can affect their concentration especially the pupils. NASUWT, the largest teacher union in the UK conducted a survey on the effect on classroom temperatures on teachers and pupils. The survey results submitted by members indicated conclusively that classroom temperatures above 24°C have a detrimental effect on both teaching and learning. It was a matter of concern that these results probably understated the extent of the problem as, during the survey period, temperatures throughout the UK were well below the seasonal norm (NASUWT, 2011). The situation in the case of Kumasi may be worse since regular day temperatures are above 24 °C. Shading was predominantly absent from most assembly grounds in schools this could also make morning assemblies uncomfortable for pupils especially on days that the sun rises early and strong.

### **5.1.4 School Markets and Canteens**

In some schools, pupils actually have to go out of the schools to buy food involves crossing busy roads back and forth. The structures in which vendors were selling are also very poor, even canteens in schools under the School Feeding Program left much to be desired. There is a need to critically look at this aspects since in all areas assessed it showed the worst results. In some cases pupils would squat in the middle of the school compound on the bare soil to eat. This may expose the some illnesses due to the unhygienic conditions in which they eat their meals. (Plate 8)





**Plate 8: Conditions in which pupils have to get and eat their food in some Basic Schools**

### 5.1.5 School Field

Good turf was something that eluded almost all schools it was obvious that authorities paid very attention to extracurricular activities. , some schools had fields with some amount of grass even though it did not cover the entire field. Mostly, the mid sections of the fields were eroded due to trampling and excessive use and lack of maintenance. This could be because some school fields do not only serve the schools but the entire community. Some public school fields are used by the communities as funeral grounds and football training pitches on weekends.

In a related case, Higgins and Nicol (2002), indicated that in the UK, the school grounds are often the school's biggest but most neglected 'classroom'. If the school is fortunate enough to have a field, this comprises short grass to enable sports to take place in the summer term. Most of the

year, the grass is 'out of bounds' during recreation breaks as it is 'too wet', and some schools have sold off their playing fields altogether to pay for repairs and improvements to the school buildings. Large numbers of children are constrained to 'play' on a small tarmac yard, and this lack of space frequently results in accidents and behaviour problems. Some schools have cut the mid-afternoon play break because of these problems, and children spend the second half of the school day indoors.

#### **5.1.6 Waste Disposal**

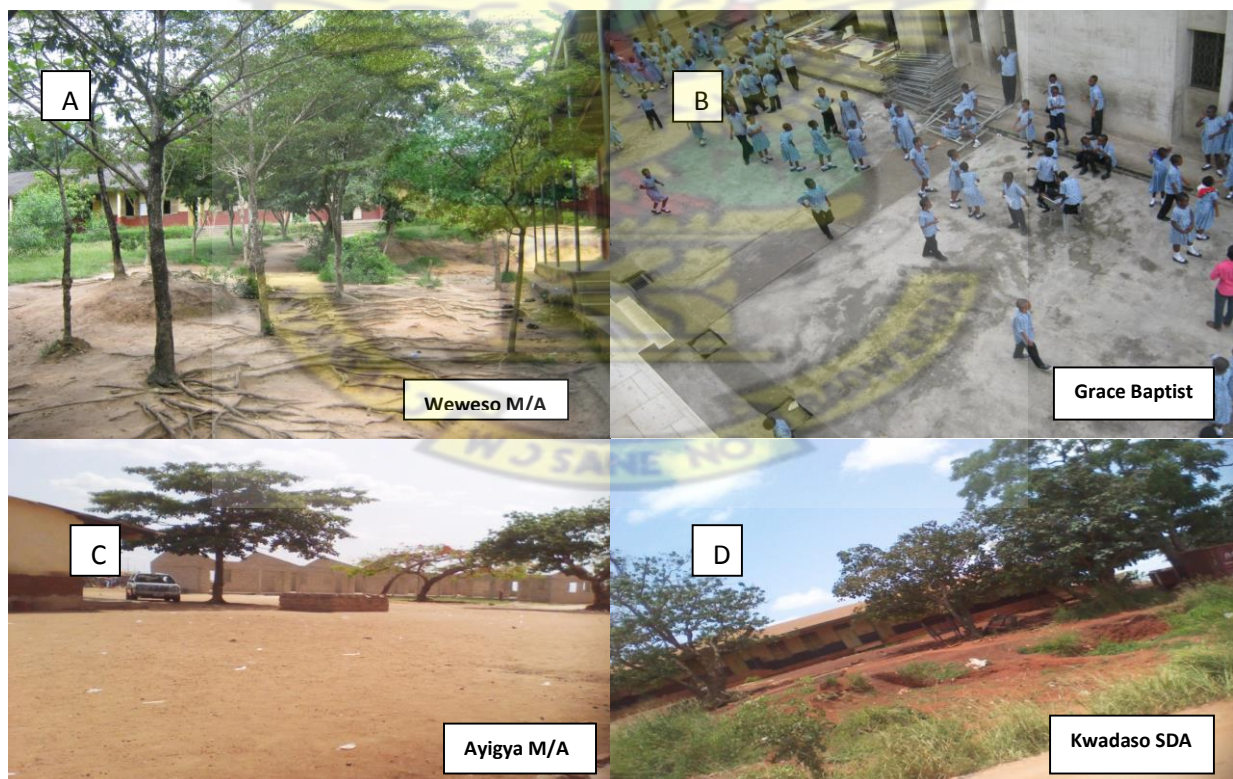
Dust bins could be easily found on most school compounds, where they could be found they were very few and in poor states. Most schools' dump sites were well sited (away from public view) but did not look good once located. The stench in some cases was very obvious and could be smelled from the classroom blocks nearest to them. In spite of these conditions only a few head teachers were of the view that their waste management needed any attention improvement. This could have been due to the unwillingness of head teachers to accept the problem or ignorance on the part of both head teachers and teachers. Very good management systems were found in very schools which included the good incinerators well maintained, and very well located dustbins. Some schools also share their dump sites with the community which makes it difficult for school authorities to control activities there. When the dump site is not properly sited the stench could cause serious discomfort for both teachers and pupils. The lack of dustbins could also discourage good waste disposal habits among pupils which they will carry to their homes and the community.

#### **5.1.7 General Appearance of School Grounds**

Availability of shade trees is rather common with public schools even though in most cases they are not adequate they are most poorly located and they hardly serve any purpose to the pupils or



teachers. Public schools especially need to pay attention to soil erosion since it was so common with them extensive grassing and planting of shade trees may be needed since in their case land is not a problem. Private schools generally have smaller compounds which in some cases are completely paved. This condition is not very good for the pupils since temperatures tend to rise very quickly with a little sunshine making classrooms warm and uncomfortable for teaching and learning. Johnson (2000) explains that in an educational context, strategically designed and managed landscapes can significantly add value to building energy efficiency gains, improve environmental quality within and beyond the immediate school precinct, impact positively on children's physical and mental health, and enhance both opportunity and quality of social interactions. The absence of landscaped grounds could therefore impact negatively on a number of schools considered under this study.



**Plate9: General Appearance of some Basic School's grounds 2**

### **5.1.8 Areas of the landscape which need improvement**

It can be readily seen that pupils preferred improvements in areas such as lawns, trees for shade, play equipment and a good number preferred to have ornamental plants to beautify the school. This could be due to the fact that most schools visited looked barren and pale (plate 10). There are very little or no ornamental plants in most schools even though very few schools had them in abundance. During breaks it was observed that the pupils mostly run around because there are no games or play equipment to guide their play times, and these could lead to injuries if not checked. . The desire to see improvements in the provision of greenery in schools is supported by the Australian Institute of Landscape Architects, (2010). It explains that, daily exposure and access to quality green play spaces for children has been shown to measurably reduce stress, increase ability to focus, and enhance cognitive functioning. Furthermore, these benefits can be demonstrated to accrue proportionally to quality and extent of landscape provision – the more plants, green views and access to natural play areas, the more positive the results. Their choice could have also been influenced by the fact that erosion is a major problem in their grounds and its control or remediation is very important. Trees for shade did not seem to be high on the priority list of head teachers and teachers, even though the provision of shade in schools, especially private ones, is poor.



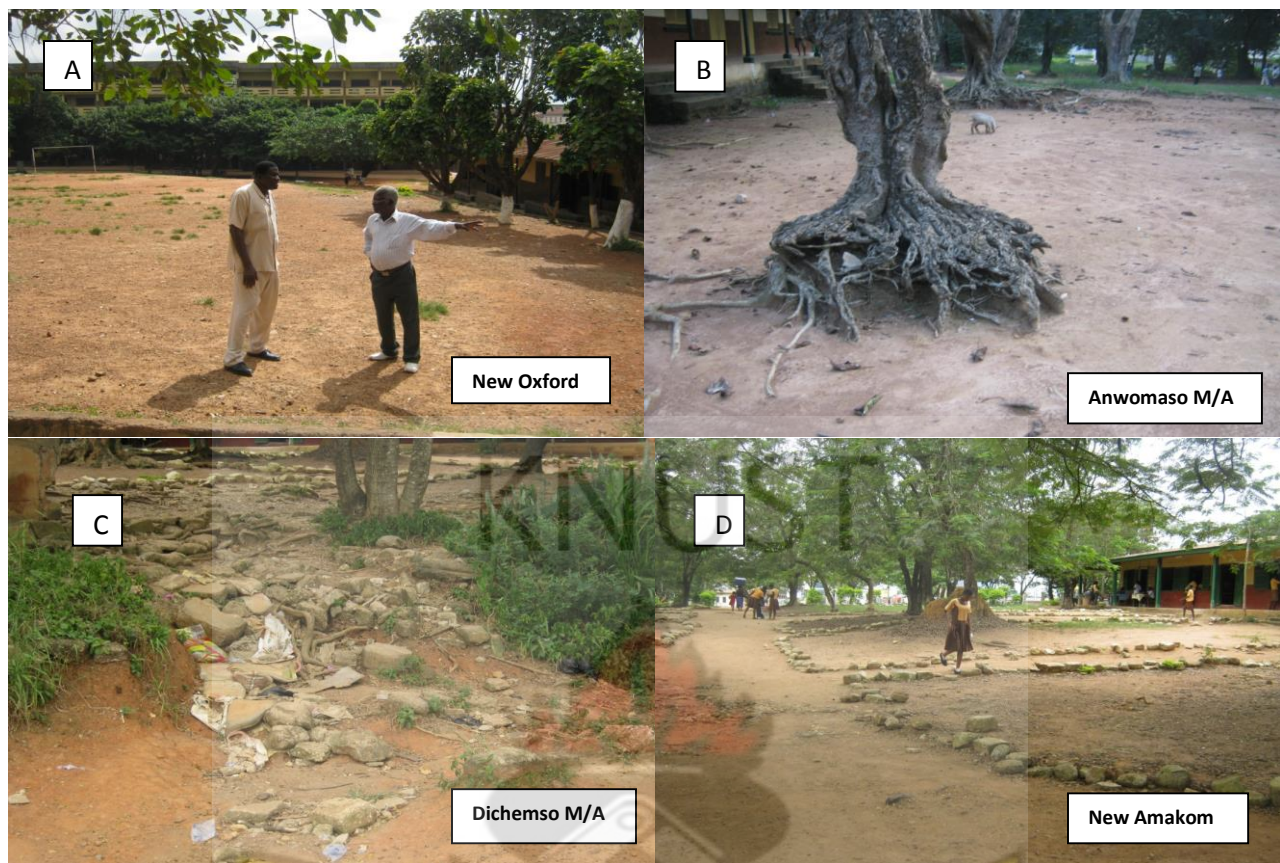


Plate10: Some areas in the school landscape which need improvement

## 5.2 USE OF THE SCHOOL GROUNDS

Pupils in some schools play in very harsh environments yet they seemed happy and indeed their responses showed most of them were content (Plate 11). This could be as a result of the fact that in spite of the harsh conditions in some schools, pupils have grown used to the harsh environments or they have not experienced any better and can therefore not expect better. A few on the other hand said they were not comfortable due to a number of reasons. Continuous use of such environment can lead to serious injuries during play. The outdoor spaces are the part of the school site which most belong to young people, and well designed and maintained school grounds can have a profound influence on the culture of the whole school. They signal to young people that the school



values their needs and convey this to the wider community, along with the ethos of the school (Casey, 2003).



**Plate 11. Some schools, showing the environment in which pupils play and learn**

### **5.3 OUTDOOR LESSONS**

Apart from Physical education, it was extremely difficult to see any other form outdoor lesson activity in the schools. This was not a surprise since the landscapes were poor and there wasn't much to use for outdoor learning. Distractions was a concern cited for not having outdoor lessons, and it was genuine since most of the schools especially the public ones are located in noisy

environments with no fencing around the schools. Brian *et al*, (1999) stated that noise and air pollution are increasingly familiar obstacles to the use of the school site. Trees, arid shrubs are not successful in attenuating noise, which requires a solid barrier like a wall, fence or earth mound close to the source. At most they may achieve a psychological reduction by screening the noise source. They are more successful in filtering air pollutants, especially the finer leaved deciduous species and certain conifers. Such pollution screens would also create another educational resource. The assessment of majority of the head teachers was that, outdoor lessons are very interesting and productive. Even with the majority of head teachers who allow outdoor lessons thereby giving teachers and pupils a chance to directly interact with the landscape and the open spaces, such lessons were witnessed in only three schools during visits. This number however does not include Physical Education lessons. This therefore suggests that there is very little direct interaction between the schools' landscape or outdoor space and teaching and learning in schools.. Some also felt it was the same as being in the classroom. A study of 40 schools in California that used the natural environment as “an integrated context of learning” with hands-on, project-based learning found that student performance improved in standardized test scores, grade point average, willingness to stay on task, adaptability of different learning styles and problem solving (Leiberman and Hoody, 1998).

### **5.3.1 Reasons for Not Having Outdoor Lessons**

In spite of various reasons cited by teachers for not having outdoor lessons, Higgins and Nicol (2002), argues that many aspects of the curriculum especially in science, geography, physical education and art can only be taught effectively through outdoor experience, and the school grounds are the obvious place to start. Teachers need the confidence to use this ‘outdoor classroom’ but unfortunately the environmental education module in teacher-training courses has disappeared from most UK colleges. ‘In-service’ courses therefore are extremely valuable to give teachers the

confidence and expertise to develop learning opportunities in the school grounds, ranging from growing and caring for plants to designing and making a solar powered fountain (Higgins and Nicol, 2002).

### **5.3.2 School Landscapes and the School Curriculum**

As a follow up, head teachers commented on the relevance of outdoor lessons in schools to the school curriculum in relation to the fact that school landscapes can support teaching and learning in schools. Majority of head teachers support the view that outdoor lessons really are relevant to the school curriculum. This suggests that head teachers do know the benefits of such activities in schools and do support them, even though this may only be in theory for some of them since most schools are in no state to support any form of productive outdoor lessons. The eroded and barren appearance of some schools grounds offer very little in terms of nature, greenery, shade, designed spaces or biodiversity to properly stimulate pupils creativity and understanding during outdoor lessons.

The noted early twentieth century educator and philosopher John Dewey called for making curriculum meaningful through the child's environment and experiences. Current research supports Dewey's theories, in applying curricula to real world situations. This concept is rooted in many approaches, including "authentic," experiential, hands on, applied, and expeditionary learning. Each suggests a potentially powerful role for the outdoor environment (Johnson, 2000).

## **5.4 BENEFITS OF LANDSCAPING SCHOOLS**

The data shows wide differences in the level of support for all the options with head teachers recording the highest values for all options, this could be as a result of the fact that head teachers had a better understanding or knowledge of the benefits of landscaping schools it could also be



that head teachers are more concerned about the appearance of the school grounds. Only 2% of teachers considered proper waste management, a benefit of landscaping school which can be attributed to lack of that knowledge.

(Johnson, 2000), indicates that there are many measurable benefits to be gained from integrated landscape design in schools which extend far beyond the more obvious and immediate payoffs such as increased visual amenity and community pride. In an educational context, strategically designed and managed landscapes can significantly add value to building energy efficiency gains, improve environmental quality within and beyond the immediate school precinct, impact positively on children's physical and mental health, and enhance both opportunity and quality of social interactions.

It can also be realized that all head teachers accepted erosion control as an importance of landscaping while most of them also indicated beautification, shading and heat control conducive environment for outdoor activities and enhancing school image, In spite of this knowledge, most head teachers have failed to provide or ensure that good landscapes are provided for their schools. Soil erosion is the worst problem in most basic schools visited yet its solution is well known to all head teachers. It was obvious in some schools that efforts had been made by the school to control erosion and plant shade trees without the involvement of any landscape professionals. These conditions could have been as a result of lack of funds for such projects and school authorities may need to come up with some ingenious means to raise funds lift the image of the schools

## **5.5 THE SCHOOL LANDSCAPE IN RELATION TO TEACHING AND LEARNING**

The results demonstrated the positive attitude of the teachers towards outdoor learning and the importance of landscaping schools to the school curriculum. Of the interviewees, 71 % do not

believe that outdoor education leads to a lowering in the level of pupil achievement. This is similar to the results of research done by Higgins, *et al.*, (2002) where 79.9% of teachers in Europe did not believe that outdoor education leads to a lowering in the level of pupil achievement. Concerning the question of the school setting being a hindrance, the answers are distributed as 33% did consider school setting as a hindrance, 49.5% did not believe this, and 17% took up a neutral position towards this question. A fair percentage perceive there to be a high risk with outdoor activities. This contradicts the study by Higgins and Nicol, (2002) where a modest (21%) percentage of teachers in childhood centres in Europe were of such a view.

The difference could be attributed to the fact that schools in Europe are better informed about the importance of good school landscapes through interventions like the Learning through Landscapes Project in the UK and Australia, which is not the case for most schools in the Kumasi Metropolis.

In the ranking of agreement the items, “some aspects of the curriculum can be better handled outside the classroom” occupies the first rank, followed by “the benefits of landscaping schools goes beyond beautification” and “the school grounds can be better managed to support teaching and learning”.

In support of the teachers responses, Brian, *et al.* (1999) argues that if the grounds are designed to be an environment for learning, there will be many instances of pupils experimenting independently with equipment and ideas previously used in curriculum time, or continuing to pursue an investigation started in lesson time using the opportunities provided in the grounds for that purpose. To the participant this may be 'play' but the reinforcement of learning which is taking place and the new ideas which are being explored are important components of learning.

Many (81%) respondents agree with the proposition that outdoor learning promotes the personal development of teachers as well as pupils. This value slightly exceeds that of Higgins and Nicol (2002), where they reported 75.4% of agreement with this assertion.



In summary respondents were asked if a well-planned environment, that is carefully designed and thoughtfully managed can be used to deliver many aspects of the school curriculum, to this there was a massive agreement of 90% and 5.5% remaining neutral probably due to the lack of the understanding of its possibility even though they do not disagree with it.

## **5.6 EFFECT OF LANDSCAPING ON ACADEMIC PERFORMANCE**

Most schools with good landscapes had very good aggregates within the range of aggregates 6 to 12 in most cases while most of the schools without landscapes were scoring lower aggregates in the range of 20 to 32. These results suggest that the schools physical environment or landscape may have an impact on the academic performance of pupils. Studies about student academic achievement and building condition conclude that the quality of the physical environment significantly affects student achievement. "There is sufficient research to state without equivocation that the environment in which students spend a good deal of their time learning does in fact influence how well they learn (Earthman, 2004).

Crain (2001), also explained that daily exposure and access to quality green play spaces for children has been shown to measurably reduce stress, increase ability to focus, and enhance cognitive functioning. Furthermore, these benefits can be demonstrated to accrue proportionally to quality and extent of landscape provision – the more plants, green views and access to natural play areas, the more positive the results.

Children's reading abilities, cognitive development, physiological indicators, and motivational tasks are affected by exposure to noise. The most common noises that children are exposed to are transportation (e.g. cars, airplanes), music and other people. Research reveals significant reading delays for children living near airports and exposed to airport noise. He and his colleagues found

these delays in reading to occur at noise levels far below those required to produce hearing damage or loss. (Kopko, 2008)

None of the schools without landscapes had average aggregates below 20. This could also suggests that even though there are other factors that influence examination results, the significant contribution of the schools landscape cannot be ruled out especially because these schools were selected solely based on their landscapes.



## **CHAPTER SIX**

### **6.0 SUMMARY AND CONCLUSION**

#### **6.1 CONCLUSION**

The grounds in Basic Schools in the Kumasi Metropolis were assessed to be generally poor. The most common problem in the schools was soil erosion at various stages. The use of ornamental plants was simply lacking in most schools. Very few schools do have good and functional landscapes in all sections of the grounds that were assessed. Most head teachers and teachers are of the view that their school grounds are conducive for teaching and learning but there was very little to show for this view. Some pupils indeed did complained about high temperature conditions in their classrooms on sunny days. This reflected in their high choice for shade trees as improvement in their school landscapes. Many school grounds are also stony and rough which makes pupils more prone to injuries during play.

On the other hand, the BECE results of the selected schools clearly suggest that the schools landscape may have an impact on the academic performance of pupils. The school landscape is an invaluable asset that should be properly designed and managed to serve all its intended purposes for the school.

Head teachers and teachers are aware of the functional and aesthetic benefits of landscaping school grounds. Their responses suggested that they are clear on the advantages a well-planned landscape would give to the school. They also tend to agree highly with a number of opinions that highlight the importance of landscaping schools. In some cases head teachers showed a greater understanding and concern for the state the school grounds as compared to teachers.

It was noted not many teachers engage pupils in outdoor learning activities in school even though most head teachers do accept and encourage the practice. Head teachers, teachers and pupils assessed outdoor lessons to be very interesting and productive; while some teachers just prefer the classroom others believe it is not relevant for their subjects. This opinion can however be due to ignorance on the beneficial outdoor activities that will enhance the learning of those subjects.

On a number of questions most head teachers and teachers indicated that outdoor learning in the school grounds is relevant to the school curriculum and so is the landscape of the school grounds to the school curriculum. Teachers also agreed that some aspects of the school curriculum can be better handled outside the classroom.

## **6.2 RECOMMENDATIONS**

- Further research should be conducted to know in detail the reasons for the poor state of most schools grounds in spite of the knowledge that stake holders have.
- Further research could also be conducted to know how parents could be involved in the discourse on the school landscape.
- It would also be instructive know why some pupils seem comfortable with their school ground despite the obvious discomfort and danger they pose. Therefore further research should be done in that regard
- Teachers should be encouraged to use the outdoors to teach pupils in order to give them new learning experiences and make lessons more interesting and practical.
- Schools administrators should consult landscape professionals to help design functional outdoor spaces in schools to promote holistic learning in and out of the classroom.

- The Ministry of Education could strengthen their rules governing the setup of schools and accreditation to compel school administrators to employ all possible means to provide very conducive physical environments for teaching, learning and play.

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## APPENDIXES

### Appendix 1

#### LIST OF SCHOOLS SELECTED FOR THE STUDY

##### OFORIKROM SUB—METRO (ENDOWED)

###### Private Schools

1. Victory Baptist School – Agyigya
2. Mizpah School – Kentinkrono
3. Nana Quainoo Memorial – Boadi
4. University Primary – KNUST
5. University JHS – KNUST
6. New Era Preparatory – Anwomaso
7. Oakwood International School – Anwomaso
8. Amazing Grace – Anwomaso
9. St. Michael's Ark Academy – Anwomaso
10. Newham International School – Anwomaso
11. Nana Serwaa International School – Anwomaso
12. Infant Jesus Lumen Christi School – Ayeduase
13. Rakho School Complex – Ayeduase
14. St. Louis Jubilee – Oduom
15. Christian Advantage Preparatory – Kentinkrono – Nsenie

###### Public Schools

16. Kotei R/C 'A' --- Kotei
17. Kotei R/C 'B' – Kotei
18. Kotei – Deduako M/A – Kotei Deduako
19. Obeng Faith Experimental – Kotei Deduako
20. Anwomaso M/A – Anwomaso
21. Kentinkrono M/A Basic – Kentinkrono
22. Oduom Emmanuel Methodist – Oduom
23. Boadi M/A – Boadi
24. Emena M/A – Emena
25. Weweso M/A 'A' – Weweso
26. Weweso M/A 'B' – Weweso
27. Ayeduase R/C – Ayeduase
28. Wilson SDA – Kotei Deduako
29. Aprade M/A Basic – Aprade
30. Bomso M/A – Bomso



#### Subin Sub-Metro (Endowed)

##### Private Schools

31. Grace Baptist – New Amakom
32. New Oxford – Amakom
33. St. Monica's Preparatory – Old Amakom
34. Modern International – stadium
35. Amakom Calvary Methodist – New Amakom/Stadium

##### Public Schools

36. Asem (Mixed) Experimental M/A – Asem
37. Yaa Asantewaa M/A – Asem
38. Amankwatia M/A 1 – Stadium
39. St. Augustine's Anglican – Asem
40. St. Cyprian's Anglican 'A' - Asem
41. St. Cyprian's Anglican 'B' – Asem
42. St. Paul's RC – Amakom
43. Amakom Abrotia M/A – Amakom
44. New Amakom M/A – New Amakom
45. Amankwatia M/A 2 – Stadium

#### Asokwa Sub-Metro (Endowed)

##### Private Schools

46. Osei Asibey Preparatory – Ahinsan Estate
47. Our Lady of Apostles – Ahinsan Estate
48. Malincoln Education Centre – Ahinsan Estate
49. Good Shepherd R/C Preparatory – Old Ahinsan Estate
50. Central Chasismatic Baptist International – Gyinyase

#### Asawasi Sub-Metro (Deprived)

##### Private Schools

51. Allowell Preparatory School – Aboabo Akrom
52. Ebenezer International – Aboabo Akrom
53. God's Church of Peace – Akrom
54. Grace Preparatory – Akrom
55. Great Ebenezer – Akrom
56. Asawasi Presby Preparatory – Asawasi
57. Great God International – Asawasi
58. Ministers International School – Asawasi
59. Otumfuo Osei Tutu II International – Asawasi

60. Holy Gardens International – Asawasi

#### Public Schools

61. Asawasi M/A – Akrom
62. Asawasi M/A – Asawasi Community Centre
63. Asawasi Methodist ‘A’ – Asawasi Community Centre
64. Asawasi Methodist ‘B’ – Asawasi Community Centre
65. St. Theresa’s R/C – Asawasi R/C Church
66. St. Peter’s Anglican Preparatory – Asawasi
67. New Aboabo M/A – Aboabo
68. Kumasi Children’s Home – Aboabo
69. Sepe timpom M/A ‘A’ – Sepe timpom
70. Sepe Tinpom M/A ‘B’ – Sepe Tinpom

#### Bantama Sub-metro (Deprived)

##### Private Schools

71. Bethel International – North Suntreso
72. Cambridge International – North Suntreso
73. Great Good Shepherd – North Suntreso
74. St. Paul’s Anglican International – North Suntreso
75. Church of Christ – North Suntreso

#### Manhyia Sub-Metro (Endowed)

##### Private Schools

76. Ave Masia International School – Dichemso
77. Bethel Emmanuel International – Dichemso
78. Joy Ahead International – Dichemso
79. Kings & Queens Academy – Dichemso
80. Mandela Preparatory – Dichemso
81. Rightway Preparatory School – Dichemso Atinponya
82. Holy International – Airport Roundabout
83. Kings International Private – Airport Roundabout
84. Nigritian International – Yennyawoso
85. Blessing International – Yennyawoso

#### Public Schools

86. Dichmeso M/A – Dichemso
87. Yennyawoso Presby – Yennyawoso

- 88. Afia Kobi Serwaa Ampem – Ash Town
- 89. Konadu Yiadom M/A – Ash Town
- 90. Kumasi R/C Girls – St Louis Training College

#### Bantama Sub-Metro

#### Public Schools

- 91. Bantam Methodist – Bantama
- 92. Bantam Presby – Bantama
- 93. New Bantama M/A – Bantama
- 94. St. Anthony's R/C – Bantama
- 95. State M/A – Bantama
- 96. Akosa M/A – North Suntreso
- 97. Abrepo Methodist 'A' – Abrepo
- 98. Abrepo Methodist 'B' – Abrepo
- 99. Ohwim R/C – Ohwim
- 100. Kwadaso SDA – Kwadaso



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