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**THE IMPACT OF EFFECTIVE SCHOOLS INFRASTRUCTURE AND  
FACILITIES MANAGEMENT ON LEARNERS AND EDUCATORS**

By

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## DECLARATION

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## **ABSTRACT**

The school infrastructure and facilities management are the key components towards the actualisation of the core business for which the school was designed for. The attainment for the educational objectives relies solely on the physical learning environment; societal teaching and learning environment, as well as facilities management. Physical environment for learning denotes various school building locations; school cultures and contexts under which the teaching and learning takes place. Societal teaching and learning environment, on the other hand, refers to the effects and the state of the surroundings; communities or societies under which educators teach and learners receive their education prerogatives. Infrastructure and facilities management are facing diverse challenges regarding: the state or conditions; maintenance; management; schools support by officials; implementation problems and bureaucratic processes which are a stumbling block to effective service delivery. The KwaZulu-Natal DoE (KZNDoE) has implemented programs in order to face infrastructure challenges and facilities management. However, their effect was minimal and inadequate. There seems to be a connection or link challenge in the endeavours of dealing with the above-mentioned. An in-depth study to unpack the missing link on the impact of effective schools Infrastructure and Facility Management on Learners and Educators is vital and might address the frustrations facing KZNDoE school management teams and officials responsible for the implementation thereof. A quantitative study approach was adopted in this research since it measures problems by formulating numerical information that can be converted into the statistics that can be useful. It further enumerates attitudes; opinions; behaviours; as well as generalising results from a larger sample population. A survey was conducted at KZNDoE schools, targeting iLembe district, in which 100 schools were selected out of 123. A 98% response rate was registered, whereby a primary tool used to collect data was a questionnaire. The study revealed the following: unsatisfactory health and safety ethics in schools; exposed poor infrastructure management; ignored learning environment in schools; inadequate support on infrastructure planning and facilities management. Provincial and District management teams need to review and refine their operations towards obtaining better service delivery. All the stakeholders involved need to take their full responsibilities. This study will be beneficial to all concerned.

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# **CHAPTER ONE**

## **THE STUDY INTRODUCTION AND OVERVIEW**

### **1.1 INTRODUCTION**

The school infrastructure and facilities management play an essential role towards the core business of the school, as well as its beneficiaries and work-force. The state of school infrastructure and the level of facilities management in schools, leave much to be desired. Asiabaka (2008) emphasises the point, that a collective effort is essential for facility management responsibility. She further alludes to the managing practises that involves planning, organising, making a decision, leading, co-ordinating as well as controlling, as essentials for managing facilities.

Basic education quality could be improved through by facilities that support the processes of learning and teaching as well as by sufficient, secured and pleasing education facilities.

The effects of infrastructure and facilities management, if poorly handled, can leave an indelible damage to the department of education. According to the Department of Education and Training (2006), document, the system of the government school is enabled to deliver enhanced education results through adequate infrastructure, its user friendly designs, quality management systems and improved management style on daily basis.

### **1.2 MOTIVATION FOR THE STUDY**

Infrastructure planning and facilities management hold the key positions in the department of education's realisation of its goals. Revisiting and re-engineering of these two categories has the potential of improving service delivery; enhancing the teaching and learning initiatives, as well as improving the pass rate of learners. There is a necessity for all stakeholders involved to play their roles and take responsibility of their tasks towards infrastructure and facilities management.

The Department of Education and Training (2006) document alludes to the essentials of good school infrastructure and facilities management.

These categories are expected to display the following:

- Independence Promoting: the spaces that collaborative work and individual learning is essential for self-motivation and inter-dependence
- Strongly linking learning with societies and practice outside the classroom situation. It also expect facilities to attract the society into the school as well as enlightenment and communication technology relations that connects the classroom with the broader world.
- Building designs that warrants educators' access and reveal the diversity of the community can be enhanced by supportive and productive environment for learning.

It is expected that the outcomes of this study will resuscitate the functionality of all stakeholders involved, in providing effective service delivery on matters of infrastructure planning and facilities management. The study will be expected to provide framework that will assist the Department of Education to improve its functionality in schools.

### **1.3 BACKGROUND TO THE STUDY**

The study was located at iLembe district in KwaZulu-Natal province. The 2011 Census indicated that iLembe district is dominated by 82% of people speaking isiZulu, and had the population of 606,809 in total. ILembe district has four local municipalities: Mandeni; KwaDukuza; Maphumulo and Ndwedwe. The district is predominantly rural.

In most cases, rural areas and disadvantaged areas are suffering the lack of service delivery and are least prioritised on many aspects. Table 1.1 illustrates shortages of learning spaces or infrastructures per province. Learning space shortages might emanate from a number of reasons: storm-damaged existing structure; overcrowding and vandalised existing structure due to poor facilities management.

**Table 1.1 Shortages of Learning space per province**

<b>District</b>	<b>Standard Classrooms</b>	<b>Grade R Classrooms</b>	<b>Multi-purpose Rooms</b>	<b>Computer Rooms</b>	<b>Media Centre/ Libraries</b>
Amajuba	292	240	357	240	112
<b>iLembe</b>	<b>342</b>	<b>427</b>	<b>401</b>	<b>427</b>	<b>164</b>
Pinetown	756	493	707	493	221
Harry Gwala	439	441	445	441	179
UGu	362	486	613	486	213
UMgungundlovu	323	489	576	489	172
UMkhanyakude	675	536	694	536	306
Umlazi	565	463	488	463	145
UMzinyathi	395	478	534	478	243
UThukela	369	442	550	442	219
UThungulu	653	652	823	652	365
Zululand	593	757	885	757	371
<b>Grand Totals</b>	<b>5764</b>	<b>5904</b>	<b>7073</b>	<b>5904</b>	<b>2707</b>

Looking at the iLembe district situation in Table 1.1 in which there are a total of 769 outstanding classrooms and 828 special rooms expected to be built,. This rings the bell about the status of schools infrastructure in this region.

#### **1.4 FOCUS OF THE STUDY**

It has been indicated in section 1.3 that the study was focused on the iLembe district which is located towards the north of eThekweni metropolitan area, and south of uThungulu district municipality. The district starts about 75km north of eThekweni metro boundary and stretches about 25km beyond the mouth of Tugela River. ILembe district is made up of 4 local municipalities. Table 1.2 illustrates the composition of high schools per local municipality.

**Table1.2 High schools per local municipality composition**

<b>Number</b>	<b>Local Municipality</b>	<b>Number of High Schools</b>
1.	KwaDukuza	20
2.	Mandeni	21
3.	Maphumulo	41
4.	Ndwedwe	40
<b>Total</b>		<b>122</b>

### **1.5 PROBLEM STATEMENT**

The KwaZulu-Natal Department of Education Maintenance Strategy (2016) alludes to the fact that the departmental infrastructure is ageing and is under constant threat from vandalism and storm damage, hence requires constant maintenance. The document further emphasises that the maintenance strategy militates against numerous threats that make the buildings lose their usefulness and increases the costs of rehabilitation. This poses a concern that the department is confirming the ageing of infrastructure and various threats to the schools infrastructure, yet the visibility in dealing with such challenges is not clear. The extent of the damage that this situation is causing to the schools, as well as the role that the officials are playing under the situation, is of great concern.

Schools in KwaZulu-Natal are facing a number of barriers to the teaching and learning situation. According to Dyson (2010) there are a number of systematic barriers facing teaching and learning situation such as: facilities that are insufficient; lack of human resources; material deficiency; overcrowding of classrooms; curriculum and policy challenges; lack of external support and transport challenges. It is also of great concern how principals of schools are affected by barriers that Dyson referred to, as well as to finding out about inadequate external support. This research therefore is expected to expose the dynamics on infrastructure and facilities management in schools, thus providing a framework reference for the department of education on finding the solutions.

## 1.6 STUDY OBJECTIVES

The objectives of the study were to:

- Evaluate health and safety standards in secondary schools in iLembe District.
- Analyse the effects of infrastructure management in iLembe District.
- Assess the environmental learning conditions based on present secondary schools' infrastructure at I Lembe District.
- Evaluate the extent to which schools are supported towards infrastructure planning and facility management in iLembe District.

## 1.7 RESEARCH QUESTIONS

Questions for the research are were crafted such that they correspond with the study objectives specified in section 1.6. The study attempted to provide answers to the following questions:

- Which resources are present in pursuit for improved health and safety standards?
- How are infrastructure and learning environment being maintained in secondary schools?
- What effects does infrastructure and environment for learning have on secondary schools' learning and teaching situation?
- Do schools get enough support towards infrastructure planning and facility management?

## 1.8 STRUCTURE OF THE DISSERTATION

This dissertation is composed of six main chapters designed as follows:

**Chapter 1:** This is an introduction chapter of the study. It indicates the study background; location and focus of the study; an overview of the problem statement; study objectives; the research questions and limitation to the study.

**Chapter 2:** This chapter deals with literature review on: the evaluation of health and safety standards in secondary schools at I Lembe District; analysis on the effects of infrastructure management; assessment for the conditions of learning environment based on present infrastructure in secondary schools of I Lembe District; and

Evaluation of the extent to which schools are supported towards infrastructure planning and facility management.

**Chapter 3:** This chapter outlines the research methodology and design. The aspects that follow are further scrutinized in this chapter: the study aims and objectives; location and participants of the study; strategies of data collection; pre-testing, validation and analysis of data.

**Chapter 4:** This chapter presents the findings of the research. The survey instrument on which findings emanates was a questionnaire. This chapter further presents the study sample size; instrument's reliability; and participants' data description according to the objectives of the study.

**Chapter 5:** The presentations in this chapter are the discussions, interpretations, and explanations of the research findings. This was done in line with the objectives of the research as well as with the literature review.

**Chapter 6:** This is the final chapter of the study in which there are recommendations and conclusion. It seeks to: determine the extent to which the research problem has been resolved; discuss study implications; provide recommendations to solve the research problem, as well as making recommendations for future studies and limitations to the study.

## **1.9 STUDY LIMITATIONS**

The majority (75%) of the participants were from deep-rural areas and from disadvantaged communities. The findings might portray the image on these areas only, which might not be the situation in former model C schools as well as in locations and townships. The study mostly dealt with schools which were servicing predominantly black communities.

## **1.10 CONCLUSION**

According to Lahon (2015) a good school infrastructure indicates a good school, and a school can't survive without infrastructure. An infrastructure is supposed to be well managed in order to prolong its life cycle. The varying programs of delivery in education are enhanced by the school facility that is effective. Such facility should further afford a protected, easily accessible, comfortable, well casting light upon, and well ventilated physical environment.

Outlines of the basis of the study, the focal point and the research importance have been discussed, based on the school infrastructure and facilities management status in this chapter. The following chapter will focus on literature review.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

Safety essentials, decency and secured facilities in schools, will result in successful educational programs. A safe school environment enables educators to excel in their teachings, and learners are thus receptive to learning. To develop the educators that are needed to excel in this twenty first century, South Africa's education system must deliver learning environments of a higher quality where learners are encouraged to develop their creative thinking.

According to Ayeni and Adelabu (2012), secondary schools have challenges of deteriorating, out-dated physical structures and insufficient space. These collective deficiencies harm the quality of learning and teaching, and pose safety and health challenges on learners and educators. The effects of declining conditions and inefficient facility management of infrastructure in schools are a hazard to the management of schools, the delivery of the curriculum and the performance of learners academically.

According to KwaZulu-Natal Department of Education (KZNDoE) Maintenance Strategy Report (2016), the department operates about 6000 public educational institutions which accommodate in excess of 2.8 million learners. The document further states that, apart from the teaching and learning spaces and ancillary facilities dedicated to school based education service delivery; the department has non-school administrative offices which complement the aforementioned portfolio base. All these institutions are staffed by over 109 000 employees; over 80% of which are educators.

The importance of infrastructure planning and facility management in schools is mandatory, guided by the government immovable asset management Act, No. 19 of 2007 (GIAMA).

According to the KZNDoE Maintenance Strategy (2016), GIAMA is a legislative management framework of assets that are immovable in use by educational departments for service delivery purposes. The GIAMA processes have to be reinforced by the Department's strategic planning with regards to infrastructure management, from acquisition through to disposal.

## **2.2 HEALTH AND SAFETY IN SCHOOLS**

The literature review will examine through investigating and unpacking the impact of effective schools Infrastructure and Facility Management on Learners and Educators of KZNDoE, focusing on iLembe District Secondary schools. Furthermore, the study was directed to the following secondary objectives:

- Evaluating health and safety standards in secondary schools in iLembe District.
- Analysing the effects of infrastructure management in iLembe District.
- Assess the environmental learning conditions based on present secondary schools' infrastructure at iLembe District.
- Evaluating the extent to which schools are supported towards infrastructure planning and facility management in iLembe District.

The challenges emanating from deserted school infrastructure and facility management seem to haunt different continents. According to Ayeni and Adelabu (2011), the combined challenges facing secondary school in Nigeria are: the pressure of capacity utilisation, designs that are outdated, and schools' declining conditions. Such conditions pose a challenge to educators and learners' health and safety as well as impair the learning and teaching quality. The declining factor conditions together with poor management and maintenance of school infrastructure poses a threat to curriculum management delivery and learner performance.

### **2.2.1 Evaluating health and safety standards in secondary schools at iLembe District**

The monitoring, establishment and implementation of safety minimum standards at schools could be effected by an instrument provided by the National School Safety Framework (NSSF) (2015), and whereby accountability is expected from provinces, district and schools.

NSSF further outline approaches that guides provinces, district and schools towards achieving school environment that is healthy and safe.

According to Planty and DeVoe (2005), a school environment that is safe should be displayed by weapons free premises, no substance abuse, free of theft learner intimidation premises. School facilities appearance and physical conditions are also affected by cleanliness and noise levels in a school. The research will unpack and reveal health and safety standards at iLembe district secondary schools. Safety and security in schools is not only a South African issue but also a global challenge, characterised by types of crime and violence taking place on school premises or in neighbourhoods, ultimately affecting schools (Guerrero, 2006:90, cited by Gina 2013).

In the DoE Handbook on Educational Facilities, Lapus (2007) it is clear that the accessibility of secured, safe, satisfactory and adequate educational facilities will support the learning and teaching processes, and ultimately improve the quality of basic education. This research will further highlight the consequences of the conditions of health and safety standards prevailing at iLembe district. According to Lapus (2007) alludes to pre-requisites in opening a new school such as availability of educational facilities that are satisfactory, secured and safe. He further sensitised that due to educational sites vulnerability to geological and climatological hazards, should always be assessed. Equally, sub-standard facilities is regarded as one of the reasons that can lead to the closure of a school.

South African legislative framework alludes to a number of documents about building safety schools in South Africa as highlighted by Lazarus (2010):

- The Constitution of South Africa;
- Criminal Procedures Act;
- Educators' Employment Act ;
- Control Act of Firearms;
- Strategy of National crime prevention;
- Policy of National educational;

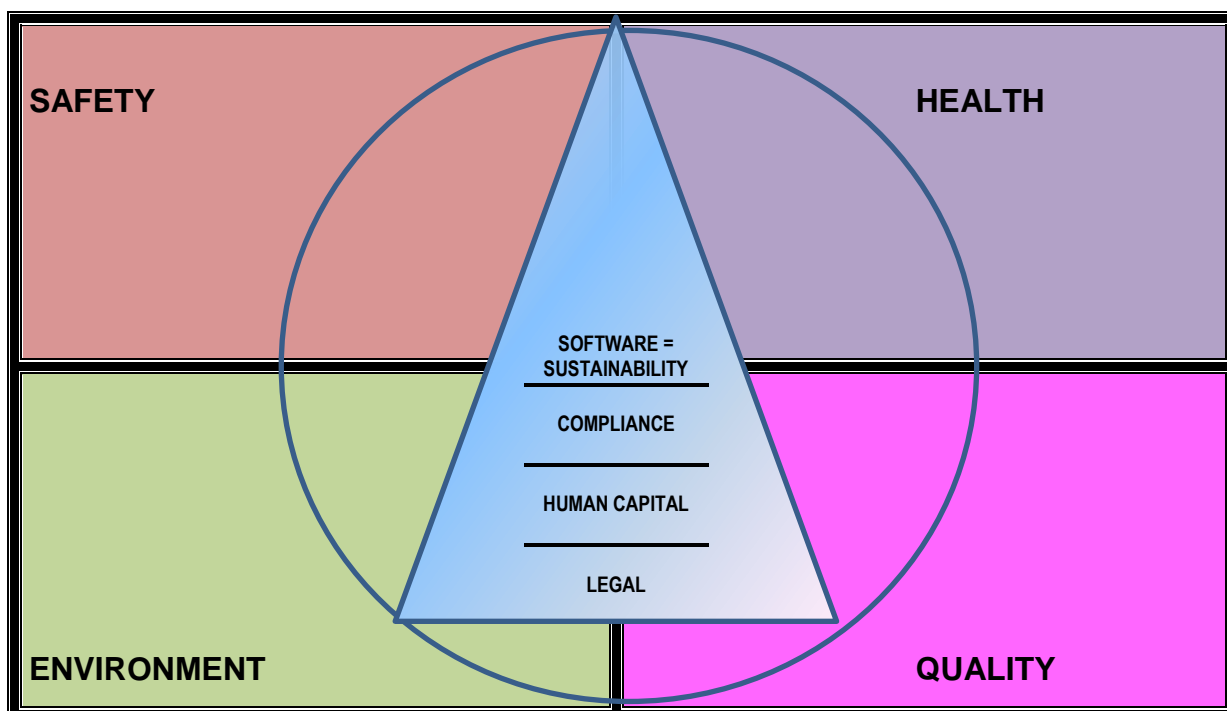
- Health and safety acts;
- South African schools Act;

The above documents emphasize the importance and the rights to health and safety of learners, educators and stakeholders operating within the premises of the school building. They further highlight the importance of safety within and outside the premises. According to the DoE Health and Safety document “advise on legal duties and powers” (2014), touches base with health and safety at work act 1974, which specifies that the school based employer is expected to take sound precautions to ensure that learners and staff are safe from risks exposure to their health and safety. This is applicable within the school as well as outside school premises activities.

Guiding documents on health and safety at work like 1974 act on health and safety provides details on actions to be taken by employers like:

- Evaluating risk exposure to members of staff and other people who are affected and involved in school activities, thus identifying necessary safety and health measures there by keeping significant record of findings for the assessment;
- Presenting risk management measures;
- Liaise with employees on issues of measures to be engaged based on risks discovered; and
- Adequate Health and Safety training programs are implemented to employees

According to Prime Link Quality Management Consultants using Safety, Health, Environment and Quality (SHEQ), approach a system that enables any organisational processes to be aligned. Figure 2.1 illustrates SHEQ system that aligns organisational processes.



**Figure 2.1: Safety, Health, Environment and Quality management system.**

Source: Prime Link (quality management consultants).

SHEQ system assists in intensifying quality management within an organisation. The system provides services that are aligned with ISO 9001 standards, which is a quality management system. Improving workforce compliance, software sustainability is imperative in an organisation like a school. The legal exposure in managing health and safety, for a school management team, plays a crucial role. Compliancy on managing such activities is a necessity.

This research will therefore expose the situation at iLembe district about practices of the above health and safety regulations and acts. It will further provide clarity on how learning environment and infrastructure are being maintained and managed at iLembe secondary schools. The research will also highlight grey areas on health and safety in the district. All schools are expected to have their own safety and health policy, stipulated by the DoE Safety and Health Strategy (2014).

The purpose of the policy, among other factors, is not limited to the following as stipulated by the DoE Gauteng Province (2015): to ensure safety measures for everybody in school and that safety measures are applied in addressing issues of substance and drug abuse; theft and robbery; bullying; sexual abuse; violence as well as the use of dangerous weapons or objects in school.

The DoE Health and Safety Strategy (2014), further stipulates the duties of employees responsible for school management, and that by law they expected to:

- They are responsible for health and safety care in their areas of operation and to other people who may accidentally affected by what they do in their workplace;
- Health and Safety issues need their cooperation with employers;
- Training and Instructions guide operations at work; and
- On situations that pose serious threats and danger they should sensitise the employer in order for remedial actions to be taken (DoE Health and Safety Strategy 2014).

The School Management Team, need to work tirelessly to raise the bar towards maintaining good health and safety standards in their schools. Therefore this implies that there is a need of individual school to produce an all-encompassing, polite ethos that protects and promotes esteem for human rights.

### **2.2.2 Analysing the effects of infrastructure management.**

The research will unpack the situation and scenarios of the effects on schools infrastructure management at iLembe district. The analysis of the situation will reveal the effect of infrastructure management, thus further disclosing the gaps and grey areas. A collective effort is required in the responsibility of infrastructure management. Management practices, that involve organising, planning, decision making, co-ordinating, leading, and controlling, are applied in infrastructure management (Asiabaka 2008). Asiabaka further cite that physical environment of a school is a noteworthy deciding element in the accomplishment of its targets.

This emphasises the importance of a school infrastructure being properly managed. It suggests that Infrastructure administration is an aggregate obligation of the national, government, neighbourhood government experts, staff and learners of the individual schools, and the group where the school is found, (Asiabaka 2008). Working hand-in-glove with the stakeholders involved yields positive and desired outcomes.

The school infrastructure for learning implies school building, site, all equipment and furniture contributing to the delivery of quality education to learners and creating a learning environment that is positive and conducive.

Mhlanga (2016) released a statement that the Department of Basic Education has gained critical ground towards enhancing the condition of schools foundation in the nation, especially in the arrangement of essential administrations, new schools and restoration of existing resources. He additionally demonstrated that the area has manufactured an aggregate of 684 schools from 2009/10 to 2015/16, and an extra 343 schools are gotten ready for the period 2016/17 to 2018/19.

However, the concern is the manner of management of these infrastructures for sustainability of its lifelong productively, serving the purpose for which it was constructed.

The school infrastructure plays a critical part in the accomplishment of the educational objectives and goals by satiating the emotional and physical needs of the students and staff at the school. Ideally, a few examples of adequate infrastructure are:

- Enough appropriate space for each and every learner as prescribed by ethics established by a country's Education Ministry;
- Adequate learner classroom for 30-40 learners space, allowing efficient use of teachers during lesson presentations and learner tasks;
- Construction systems that confirm the children's safety at school, appropriate to natural hazards of the area in which the school has been built;
- Adequate isolated boys' sanitary facilities, females and for the personnel; and
- Progressively, power and Internet network

According to Hinum (1999), there are factors that affect the duration and quality of a building such as the degree of agency on attending to the refurbishment needs as well as the manner in which repairs and servicing are conducted. Among other results emanating from poor infrastructure management can be:

- parts of the building deterioration;

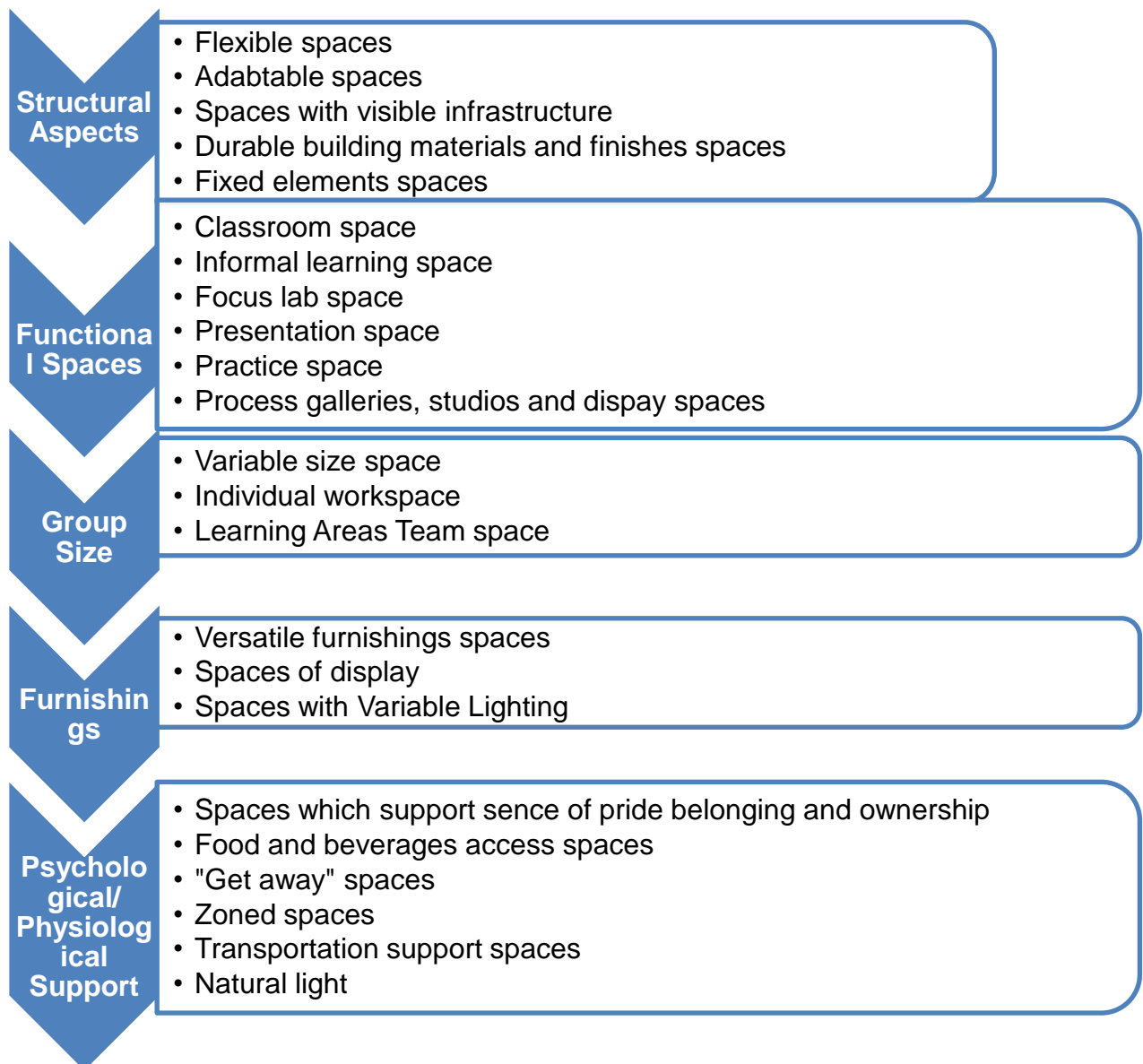
- unhealthy and unsafe environment and ;
- teaching and learning of a lower quality;
- living of a lower quality standards;
- vandalism.

This research is therefore expected to reveal the state of infrastructure management within ILembe district. Most importantly the features of the infrastructure play a crucial role towards the sustainability of goals to be achieved by an organization.

Wolf (2003) alludes to features of the physical learning environment for collaborative project-based learning that support and enhance learning.

Wolf indicated that even though his study was focusing the level of community college, but the study findings were applicable to all educational levels and have insinuations regarding physical learning environments in which there are vigorous learning processes, (Wolf 2003).

Figure 2.2 illustrates outlined features for project-based learning in physical learning environment. Such design is applicable to all levels of education.



**Figure 2.2 Outlined features for project-based learning in physical learning environment**

Source: Career and Technical Education Centre in National Research (2003).

Structural aspects seek to verify adequate spaces in terms of flexibility, adaptability, visibility of infrastructure, durability and fixed elements.

The other aspect that figure 2.2 illustrates is functional space which seeks to verify availability of spaces for teaching and learning processes.

The Group Size aspect is intended to verify workspaces for individuals, different learning areas teams' space as well as flexibility of spaces.

The furnishings aspect verifies display spaces, variable lighting and multipurpose furnishings. Lastly the psychological or physiological support aspect play the imperative role as well in the verification of: spaces that offer a sense of belonging, pride and ownership, spaces of getaway, food and beverage access spaces, zoned space, natural light as well as spaces for transportation support. Deficiency of learning space and related offices is an inescapable element for out-of-school youngsters in rustic and thickly populated urban settings – especially where inner movement is high in remote country ranges, and for young ladies who have begun discharging (Educate a Child Program).

Lapus (2007) alludes to educational infrastructure as being indispensable to a school; playing the role of enabling educational activities in progress within a school besides school housing role. According to Adeboyeje (2000), Proficient administration of school physical offices is obligatory keeping in mind the end goal to make the school a lovely, protected and agreeable focus that will expand learners' participation inspiration and eagerness to take part satisfactorily in both educational program and co-curricular exercises, cited by Ayeni (2012).

According to Xaba (2012), the centrality of infrastructure upkeep to class usefulness is perceived around the world, to the degree that numerous instruction offices have devoted authoritative structures or units in charge of school framework and offices administration and support. This is accounted for in various universal reviews, in particular: Victoria State Government Department of Education and Training, 2006; Alberta Learning Facilities Branch, 2004; Florida Department of Education, 2004; Akram, Anderson, Arent, Ashkin, Ayers and Brittain, 2004; Mearig Crittenden, Morgan and Guess, 1999; Organization of American States General Secretariat, 1998.

Good maintenance of infrastructure implies good management of that particular infrastructure. Clean good looking infrastructure is perceived positively and creates a positive learning atmosphere in schools which enhances the opportunities of good performance.

For instance, Asiabaka (2008) expounded on the requirement for powerful foundation administration in schools in Nigeria, while Baltimore County Public Schools' (2007) Office of Strategic Planning distributed a handbook entitled Comprehensive Maintenance Plan. This is evidence of the importance of the school infrastructure's image.

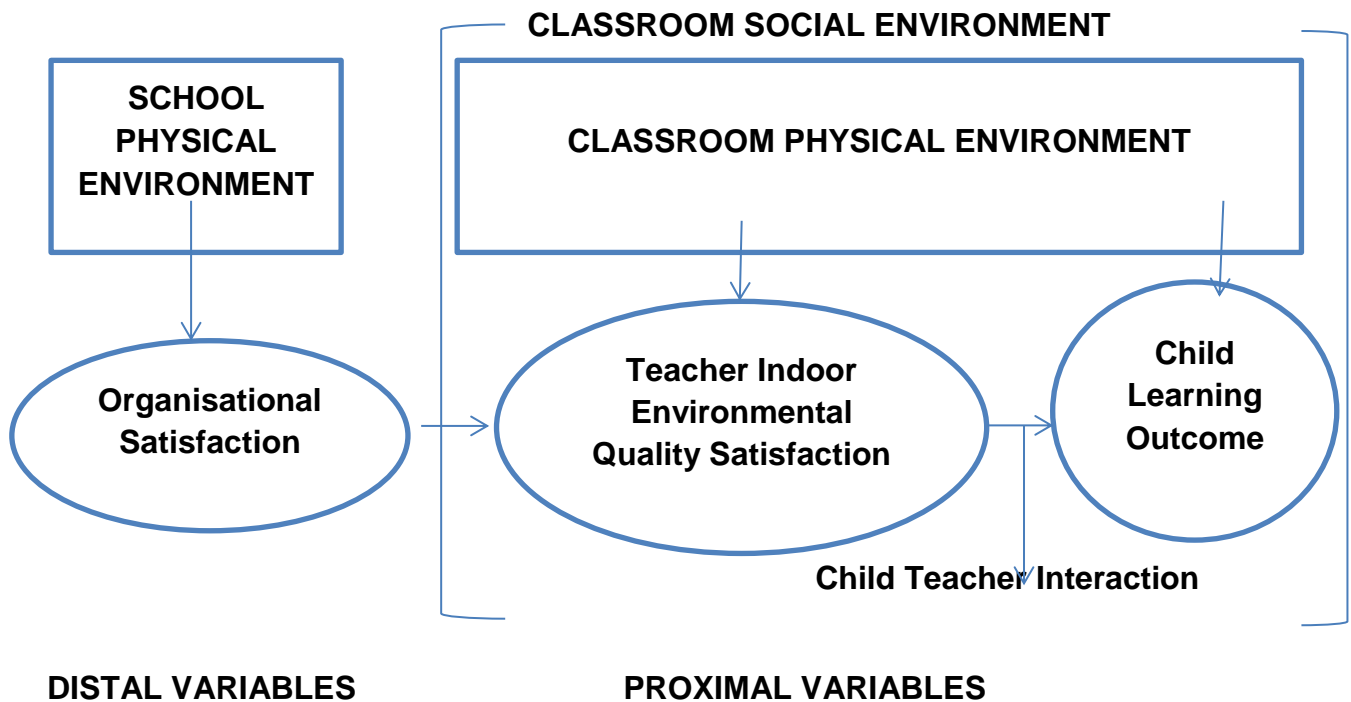
There are two most important categories to consider on infrastructure management in secondary schools: firstly, the school physical environment and learners' achievements, and secondly, the school social environment and learners' achievements. The school physical environment entails: the condition of a school building as well as the features of the building. The building condition, physical safety, classroom environment and school protocols in all reflect the school physical environment. Earthman (2004) alludes to the following, that research about learners' scholastic accomplishment and building condition presume that the nature of the physical environment essentially influences learners' accomplishment. There is adequate research to state without quibble that the working in which understudies spend a decent arrangement of their time learning does, actually, impact how well they learn.

According to Berry (2012) effectively dealing with a school domain is a vital and fundamental instructive speculation. Inquire about progressively demonstrates that there is an unmistakable connection between ecological nature of schools and instructive execution:

- Environmental quality in schools is determined by facilities management systems.
- Attitudes of students, teachers and staff are shaped by the quality of the school environment
- Learning and teaching behaviours are affected by attitudes.
- Performance is affected by behaviour.
- Educational performance determines future outcomes of individuals and society as a whole", (Berry 2012).

The consequences of poor infrastructure management might be detrimental to the school image, learner performance, and the culture of teaching and learning; thus impacting negatively on the stakeholders involved.

The conceptual framework in figure 2.3 illustrates the school physical environment and classroom physical environment. The framework speculates a direct impact of the physical environment on child learning outcomes.



**Figure 2.3: Frameworks for Physical Environment and Programme Quality**

Source: Stuart (2015)

Figure 2.3 reflects the relationship and interconnections between school physical environment and classroom physical environment. The activities written on circle shaped figures are linked with arrows linking activities from a school physical environment, to activities within a classroom physical environment.

The school physical environment has an impact or plays a most important role towards organisational satisfaction. This is linked to the teacher indoor environmental satisfaction that contributes towards the child learning outcome, which are factors of the classroom physical environment.

The physical environment affects building users in numerous ways, such as job satisfaction (Klitzman & Stellman, 1989; Carlopio, 1996; Kamarulzaman et al., 2011), learning outcomes (Schneider, 2002; Bailey, 2009) and health (Mendell & Heath, 2005; Fisk et al., 2011, cited by Shell, 2015).

### **2.2.3 Assessment of learning environment state based on Secondary schools' present infrastructure at ILembe District**

The set up interest of schools is to oblige learners near an unselfish feeling of qualities tone diverge is open, aware, mindful and safe. This originator development environment advances prosperity. It mirrors an unconstrained practice lessons that makes and provoke a dazzling, empowering and inviting spot, (Queensland Department of Education and Training Government 2015). The qualities implied in the statement above, about the core business of the school, demands for the state of learning environment to be prioritised.

According to the Learning and Wellbeing Framework (2015), schools can achieve its core business by:

- communicating and developing a clear commitment to safety;
- acknowledging individual differences and afford learning to succeed opportunities to all learners
- afford learners with opportunity to participate in decision making initiatives at school; and
- maintaining constant schools rules and regulations and penalties that are:
  - ✓ collectively established with learners and the entire school community;
  - ✓ explaining evidently;
  - ✓ positively enforced ;
  - ✓ fulfilling of good conduct;
  - ✓ supporting learners' pastoral care;
  - ✓ affording positive learning environment and physical space that enables learners and educators safety; and
  - ✓ staff supporting well-being .

Asiabaka (2008) insisted that schools exist to serve financial and political necessities of the regularly evolving society; thusly, they are in consistent cooperation with their outer environment. Therefore the state of learning environment will be affected by socio-economic and political needs.

According to Greany (2005), the state of learning environment could be unpacked through acquiring knowledge in terms of understanding the following:

- what makes a decent school physical learning environment?
- what affect do school physical learning situations have on learners conduct, inspiration, learning and accomplishment?
- which parts/components of school learning situations have the most effect to understudy conduct, inspiration, learning and accomplishment, and why?
- what prove exists to demonstrate the relative harmony between the physical environment and the enthusiastic and intellectual situations on understudy conduct, inspiration, learning and accomplishment?

Greany (2005) alluded to four questions that could unpack the state of learning environment in schools. Looking at the first one which talks about features that makes a good school (physical) learning environment, the following fact could be deduced: the classroom physical structure is a critical variable in affecting learning and the learners' morale. According to Suleman and Hussain (2014) physical classroom environment is a mix of various things i.e., dividers, work areas lighting, temperature, ventilation framework, room size, floor, seats, carpets, boards, and computers.

Suleman and Hussain (2014) emphases that "teacher and students are considered the main elements of the classroom environment. Furthermore favourable physical environment has a significant positive effect on the efficiency of any organisation and acts as a catalysing agent to provide a straight way for achieving predetermined objectives of an organisation". This demands effective and successful classroom management by educators and school management team.

Phillips (2014) sounded an important concern that the learners' involvement in the process of creating their environment can empower them, develop community and increase motivation. Learner involvement enhances the sense of ownership and responsibility to them.

Another important question alluded to by Greany (2005), was what impact do physical school learning situations have on understudy inspiration, conduct, learning and accomplishment. An unwelcoming physical school learning environment might impact negatively on learners in many ways: develop a low self-esteem; learners' anxiety; poor behaviour and depression (Firestone 2015). It is therefore unlikely for learners who experience such challenges to achieve and perform well in school. The scope of improving students' learning depends on factors such as accessibility of school accessories, instructional facilities availability, classroom structure and students' school compound location. (Oselumese, Omoike, and Andrew 2016). Greany (2005) further alludes to the fundamentals of learning environments at school that make utmost change to learners' behaviour, learning inspiration, and accomplishment. According to Figueiro and Rea (2010) the impact on learners' attentiveness during school is affected as a result of the disruption of their melatonin cycles, subsequent from deprived of natural light, cited by Baker and Bernstein, (2012). Classrooms that have adequate access to thermal controls in operable windows or thermostats, have reported high levels of educators comfort, thus excelling in their performance, (Bernstein 2012).

When ventilation rates are at or beneath least benchmarks (approximately 15 cubic feet for every moment (cfm) per understudy), a related reduction of 5%–10% happens in specific parts of understudy execution tests (LBNL IAQ Resource Bank). In late reviews, when ventilation rates were brought down from 17 cfm/individual to 10 cfm/individual, specialists saw a 15% expansion in indication predominance for Sick Building Syndrome (in the same place, (Baker and Bernstein 2012).

Finally, Greany's last question was on evidence that exists to indicate the relative balance between the physical environment, and the emotional and cognitive environments on pupil behaviour, motivation, learning and achievement.

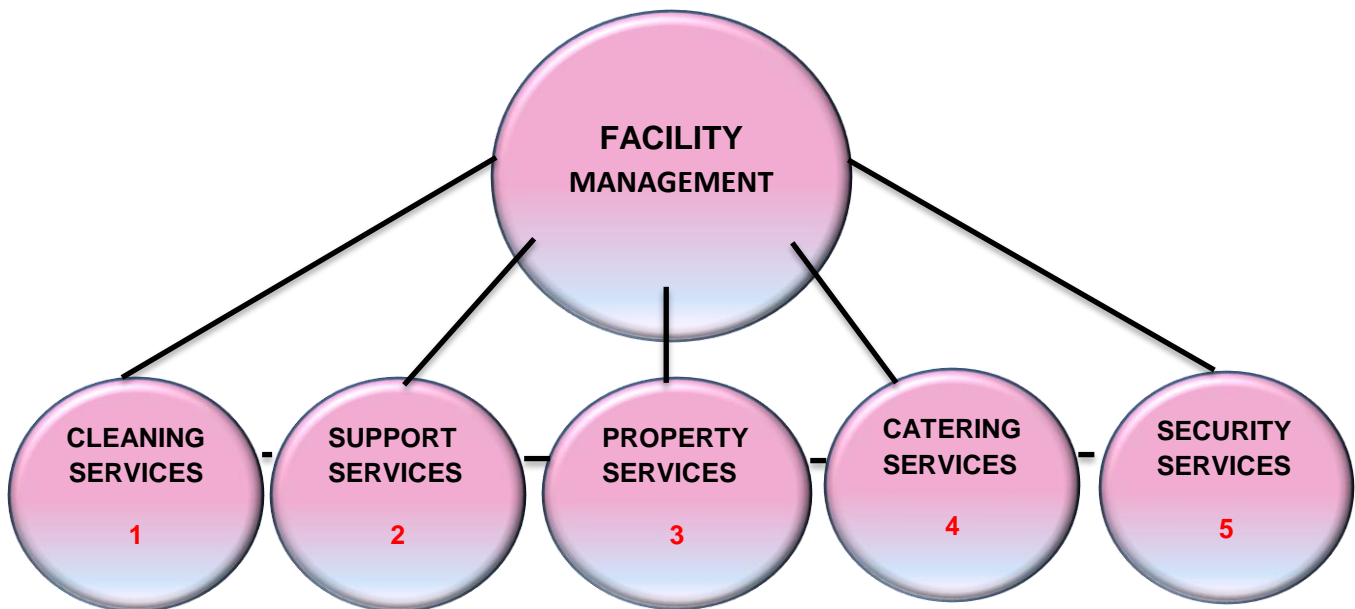
As indicated before that, through unpacking and providing answers to Greany's questions, the state of learning environment's picture could be drawn. The school's adequate infrastructure provides the solution to Greany's last question. Adequate infrastructure was discussed in 2.2.2 in the analysis of the effects for infrastructure management.

#### **2.2.4 Evaluating the extent to which schools are supported towards infrastructure planning and facility management.**

Lackney (2016) confirms that school facilities that are effective become responsive to educational delivery programs and such facilities should at minimum level provide physical learning environments that are reachable, comfortable, ventilated, safe, appealing, and secured. Therefore, the lack of support or insufficient support to the schools towards proper facility management, can lead to a sluggish response towards changing programs of education delivery. This can further result in unproductive operations within the school, which can end-up producing dormancy in productivity. It is imperative for the district officials to work hand-in-glove with the school management team in capacitating and providing support towards facility management in schools.

It is expected that the research findings will assist in evaluating the extent to which district schools are receiving support from department officials towards proper facility management.

Figure 2.4 illustrate the model indicating activities involved in facility management.



**Figure 2.4: Schools Facilities: Overview, Maintenance and Modernisation**

Source: Facility Management (Satyam 2013).

Daily cleaning	Front office	Building maintenance	Contract Catering	Physical security
Periodical cleaning	Back office	Grounds maintenance	Vending services	Surveillance
Special cleaning	Welfare facilities	Environmental management	Events catering	Technical installations
Segment cleaning	Labour supply	Energy	Confectionery service	Workplace emergency
		Damage control		Consulting services

The model illustrates five important components entailed in facility management. These components enable the management of a school to focus on the expectations of each component for effective facility management in their institutions.

The **first component** caters for **cleaning services**. This component involves: the daily cleaning operations; periodical cleaning procedures; special cleaning measures and segment cleaning processes.

**Secondly** is **support resource**. It focuses on: Front Desk operations; Behind Offices routines; Well-being Facilities operations and Employment supply processes.

**Component three** focuses on **property amenities**. It looks into: Maintenance of the Buildings; Maintenance of the grounds; Environmental Administration; Energy supply and control of the damage.

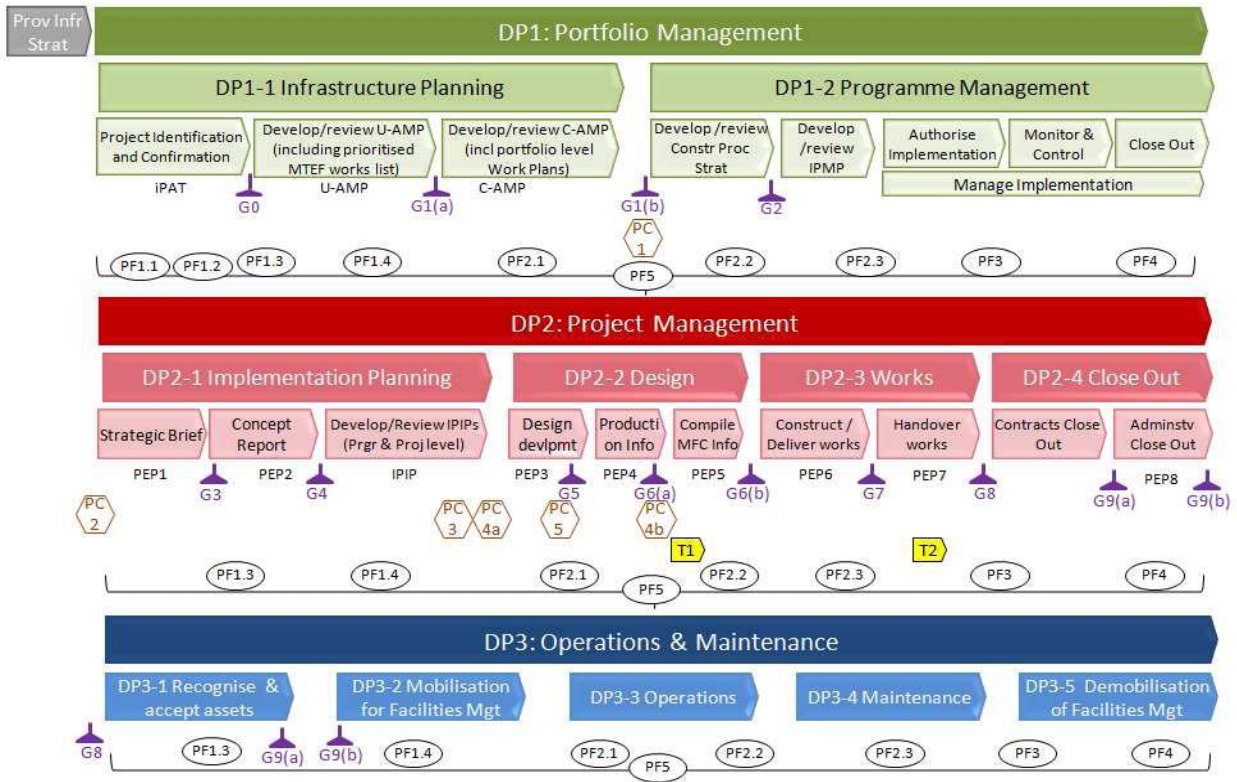
The **fourth component** is about **Catering Services**. The main focus being: contract catering; vending services; events catering and confectionery services.

The **final component** is **security facilities**. It encompasses: Emergency workplace management services; Physical safekeeping; Technical specialised connections; Surveillance, and Consultation services. The operations of all components are linked to each other and operate as a system.

Picus (2016) alluded to the fact that while the arranging, plan, and development of the school office may take a few years, the administration of it will last the whole life cycle of the office, cited by Lackney (2016). Therefore it is imperative for the school management team to establish a clear routine plan that focuses on looking after the school infrastructure. According to Borrey (2015), strategic infrastructure planning involves the process into which a school looks at all the aspects of their planning and how they would wish the school to be in the future. Generally it gives the wider picture of where the school is at the moment, where they are aiming to be in future, and plan that how they are going to accomplish their future objectives (Borrey 2015). This encompasses the mission and the vision of a school, including the society in which the school is located. The South African government has indicated that in 2012 it had adopted an infrastructure national plan. Accordingly, the government was targeting at investing R827 billion in improving existing infrastructure and building new ones, this was going to stretch over a three years period in 2013 to 2014.

According to the DoE User Asset Management Plan (2016/2017), the department resolved on 'The Infrastructure Delivery Management System' (IDMS). The User Asset Management Plan (U-AMP) is prepared in line with the GIAMA that aimed at introducing constant framework in managing immovable asserts used by the departments for service delivery purposes.

Figure 2.5 illustrate the Infrastructure Delivery Management System (IDMS) and its operations.



**Figure 2.5: IDMS**

Source: User Asset Management Plan (2016/2017)

The IDMS is characterised by the following as appears in U-AMP:

- Management system of government infrastructure for infrastructure budgeting; maintenance; budgeting; delivery; procurement; monitoring and evaluation as well as operations;
- Having outcomes that strongly focused on value for money functioning of procurement that are effective and efficient together with relevant legislation compliant delivery management system.
- three Delivery Processes:
  - ✓ DP1 Portfolio Management
  - ✓ DP2 Project Management
  - ✓ DP3 Operations and Maintenance

Within each deliverable there are number of processes entailed as indicated in figure 2.5.

### **2.3 SUMMARY**

Infrastructure is the corner-stone towards clear articulated vision and mission of the schools are to be accomplished. The school cannot survive without infrastructure. Therefore facilities management become the essential activity towards achieving the goals or targets by the school and the society. Health and Safety issues, learning environment and the support given to the schools by the department of education government, remain the pre-requisites for the success of the initiatives of each and every school. This research is therefore expected to unpack and look into in-depth views of the principals about the situations in iLembe district schools, concerning infrastructure and facility management as well as the extent of the support they are receiving. A quantitative approach will be adopted in this study. This is discussed in detail in the next chapter.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 INTRODUCTION

This study adopted a quantitative approach as Rhodes (2014) puts it, that “this approach surveys a large number of individuals and applies statistical techniques to recognize overall patterns in the relation to processes”, cited by Sinaga (2014).

Quantitative approach is advantageous in the sense that: it allows comparison if conducted in groups; it deals with a number of groups from which information is gathered; it enables a broader population generalisation; it offers rating or numerical information; it advances to statistical procedures that permit determination of associations between variables” (Rhodes 2014). Survey methods are used through large sample groups in order to facilitate generalization.

Lowhorn (2013) further confirmed and agreed with Rhodes on quantitative research as advantageous as it enables significant statistically conclusions through studying a representative population sample.

The study will focus on the survey approach in quantitative research. According to Sukamolson (2010), survey approach uses scientific sampling and questionnaire design to measure characteristics of the population with statistical precision. It enables a certain degree of certainty on estimates from a sample that represents the entire population. It allows a random sampling of respondents that avails a chance of a known probability to be sampled of each person in the population. The study provided in-depth views of the school management about the impact of effective schools Infrastructure Planning and Facility Management on Learners and Educators. The views will provide the image of infrastructure and facility management at iLembe district schools, thus the effects on managing these activities will be exposed. In addition, the opinions are expected to provide a pragmatic basis of what could be done to counter contributory factors crippling infrastructure and facility management in schools.

## **3.2 RESEARCH DESIGN AND APPROACH**

### **3.2.2 Aims and objective of the research**

The research was aimed at highlighting the effects of effective management in schools, particularly focusing on Infrastructure planning and Facility Management. Furthermore, developing a framework will enable the stakeholders involved to gain an understanding of the importance and the critical role that proper infrastructure planning and facilities management has on the overall performance of the school. A turn-around strategy will improve the grey areas exposed by the findings of the research, will be anticipated to be in place. The framework will be expected to assist the Department of Education (DoE) management as a matter of reference for the benefit of improving management of these activities.

For the generation of informative results about the research, sampling was done from a population of interest. Questionnaires were administered to the schools that were sampled. The data that was extracted from questionnaires responses was analysed descriptively and interpretively. Collected data was projected to be explanatory to the following objectives:

- Evaluating health and safety standards in secondary schools in iLembe District;
- Analysing the effects of infrastructure management in iLembe District;
- Assessment for the condition of learning environment based on present secondary schools infrastructure at I Lembe District; and
- Evaluating the extent to which schools are supported towards infrastructure planning and facility management in iLembe District.

Questionnaires were formulated to extract more information about the four study objectives. The research was further expected to respond to the following questions:

- What are the resources present in pursuit of improved health and safety standards?
- How are infrastructure and learning environment being maintained in secondary schools?

- What are consequences of infrastructure and learning environment on learning and teaching situation in secondary schools?
- Do schools get enough support towards infrastructure planning and facility management?

Issues of health and safety cannot be ignored or under-rated in our schools as these play a fundamental role towards the expected school performance, as was highlighted in chapter 2, section 2.2.1. The same applies to the issues of environmental learning and infrastructure in learning and teaching situation; emphasis in chapter 2, section 2.2.2 was echoed, as well as the importance on the extent of support received by schools towards infrastructure planning and facility management, which was elaborated in chapter 2, section 2.2.4.

### **3.3 PARTICIPANTS AND LOCATION OF THE STUDY**

Schools within iLembe District were targeted for the population of the study. ILembe District is located under the KwaZulu-Natal Department of Education (KZNDoE). This district is predominantly rural. It comprises of four Municipalities: Ndwedwe; Maphumulo which are 100% rural; Mandeni and KwaDukuza which are semi-rural. iLembi District has 123 high schools: 42 schools in Ndwedwe; 40 schools in Maphumulo; 19 schools in Mandeni and 22 schools in KwaDukuza.

In each municipality there are educational circuits servicing the schools within its location, with the exception of Mandeni. Schools under Mandeni are being serviced at KwaDukuza circuit. Therefore the school management were the target participants for the study, specifically the principals. According Omokorede (2011) for the most part, the vital's obligation in the administration of instructive offices involves uniting people as a gathering that will control, co-ordinate and understandable exercises to accomplish unmistakable and all-encompassing learning for the general advantage of the general public, cited by Uko, (2015). The principal is a key role player towards effective management of the school in order to reach the targets or aimed goals. Therefore they are relevant targets to respond to the questionnaires.

Uko (2015), maintains that with a specific end goal to satisfy instructive destinations, instructive offices are required and ought to be integral to the degree that educators, learners and other faculty will make the most of their stay and play out their obligations adequately, made conceivable by the foremost's authority inventiveness and capability.

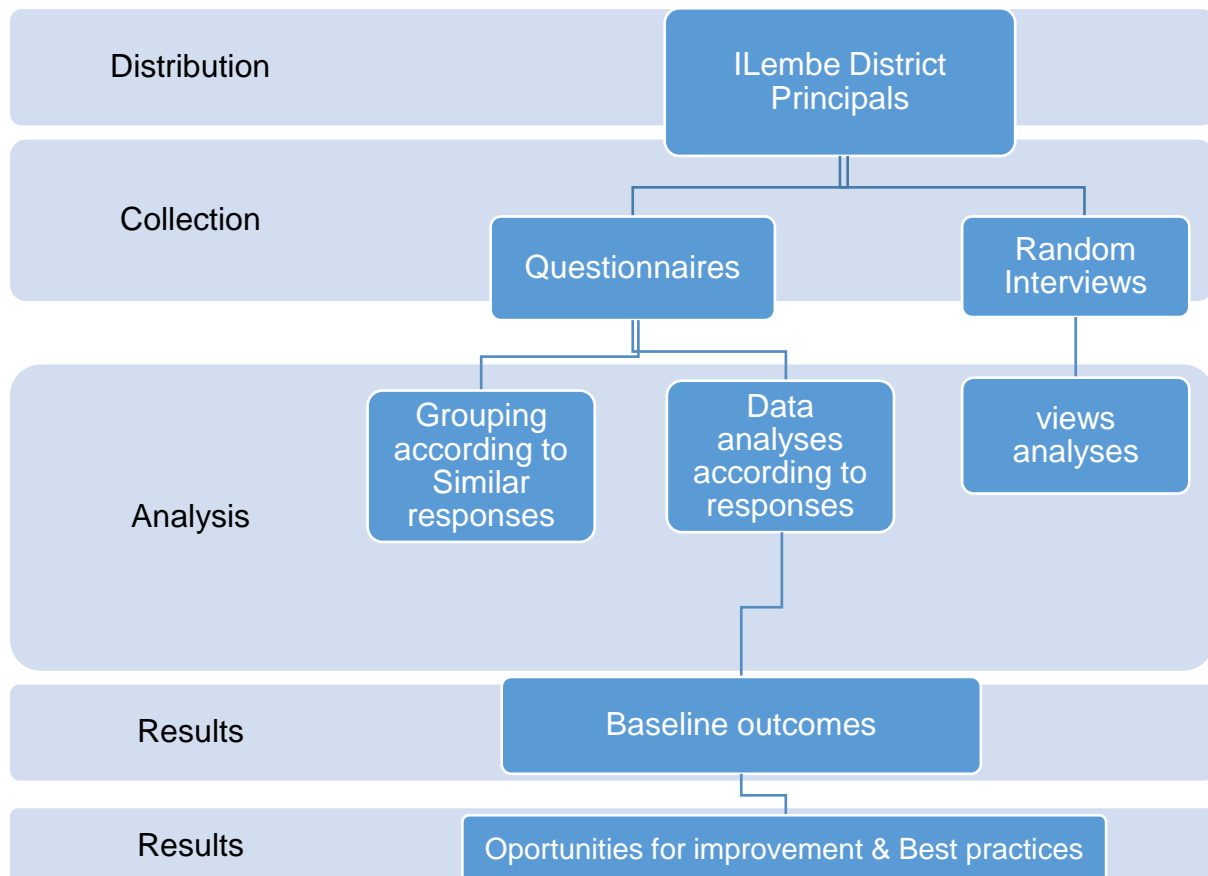
Asiabaka (2008), further agrees with Abdulkareem by maintaining that school offices administration assume a critical part in the realization of instructive objectives and destinations, by fulfilling the physical and enthusiastic needs of the staff and learners. The requirement for powerful administration of school offices, as per Hargreaves, Earl, Moore and Manning (2011), prompts to a move in the origination of foremost ship from the administrative and managerial viewpoint to that of instructional authority, cited by Uko (2015). The foremost goes about as a pioneer in all parts of the school educational module, giving and authorizing on the scholarly and enthusiastic advancement of the instructors, changing the instructional atmosphere of the school and influencing and changing the understudies learning and accomplishment conduct and attitude, (Uko 2015). With most of researchers emphasising the importance of the principal towards infrastructure and facility management, the study seems to have targeted relevant people to respond to the questionnaires.

### **3.4 DATA COLLECTION STRATEGIES**

ILembe district, as highlighted in chapter 2, is pre-dominantly deep-rural and has four municipalities in which there are educational circuit offices. Therefore in each circuit 25 high schools have been randomly selected. In total there is a sample of 100 out of the 125 high schools available from I Lembe district, expected to participate. High school starts from grade 8 to grade 12. All the schools were visited for presentation purposes, and principals who were positive to respond to the questionnaire were afforded an opportunity to fill the form. Other principals requested the questionnaire to be left and collected at a later stage, and this was perfectly acceptable. Follow-ups were duly made to collect questionnaires from such principals.

The geographical challenge of the district posed a challenge during the distribution of a questionnaire.

Some schools located at Ndwedwe and Maphumulo are not easily reachable without a 4x4 van due to rocky, narrow, mountainous gravel roads. Figure 3.1 illustrates a detailed operational map that was followed during the research.



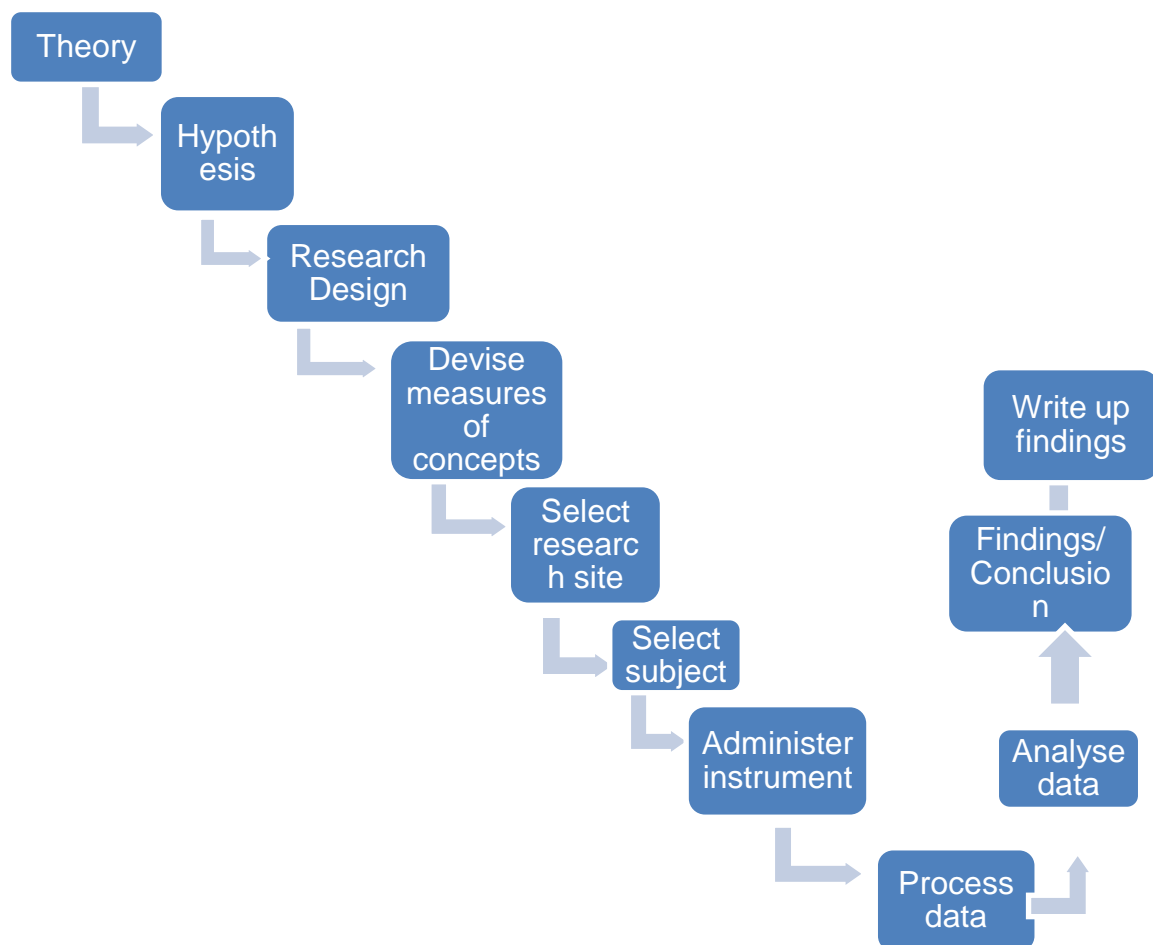
**Figure: 3.1 Research operational map**

Some of the research questionnaires were collected on the same day of distribution from principals who willingly obliged. Some questionnaires were collected from participants a week after distributions, while outstanding questionnaires were dropped off by principals in circuit offices for subsequent collection. The responses gathered from the data were then grouped according to similarities, and analyses done according to the groupings discovered. The outcomes were then providing the way forward in terms of opportunities for improvement and best practices.

### 3.5 RESEARCH DESIGN AND METHODOLOGY

According to Vosloo (2014) an exploration configuration concentrates on the final result and every one of the means in the process to accomplish that result. In this sense, an examination configuration is seen as the practical arrangement in which certain exploration strategies and techniques are connected together to procure a solid and substantial group of information for observationally grounded investigations, conclusions and hypothesis definition, (Vosloo 2014).

The research design thus provides the researcher with a clear research framework; it guides the methods and decisions, and sets the basis for interpretation (Vosloo 2014). The following Figure 3.2 represents the research design adopted in the study.



**Figure 3.2: Research Design**

Source: Ladner (2008), ACS 301

Processes highlighted on Figure 3.2 from theory, which is the initial stage until the write-up of findings, are building blocks of each other.

The quantitative research design was employed in this study. According to Bonn (2016) the steps that are involved in quantitative survey chronologically are as follows:

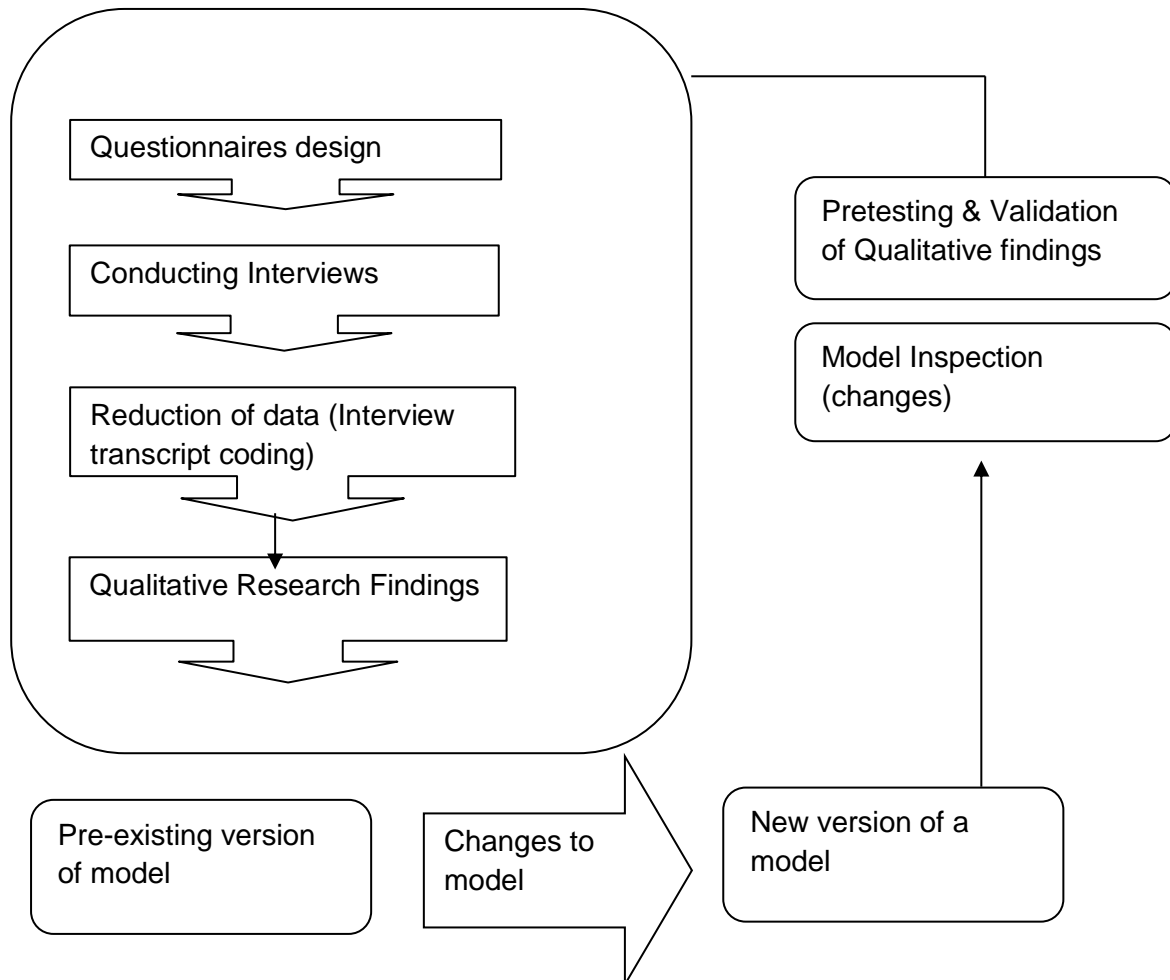
- research topic determination/issues of interest;
- sample group determination;
- development and design of the research instruments;
- application of research instrument;
- information analyses;
- documentation or presentation of results.

Kervin (1992) alluded to the fact that study look into employments logical testing and survey configuration to quantify attributes of the populace with factual exactness. It tries to give answers to such inquiries as, what number individuals feel a specific way? What's more, How frequently do they do certain conduct? Review look into empowers administration to make examinations between gatherings. It gives gauges from an example that can be identified with the whole populace with a level of assurance (e.g., of 57% of the populace, +/- 3% will answer the question along these lines 95% of the time). Study inquire about requires that respondents are "haphazardly" tested - that implies that every individual in the populace has a known likelihood of being examined cited by Sukamolson (2007). Survey research was used in this study. When using survey, several questions can be asked about the subject, giving comprehensive data analysis flexibility. Surveys are cost-effective and they are capable of collecting data from a large number of respondents. The responses were then statistically represented using graphs, charts, tables and percentages.

The methodology in research alludes to the specialist's general approach in doing the exploration extend, (Vosloo 2014). Iacono (2009) cited Myers and Avison (2002) on viewing research method as an enquiring tactic or strategy in which an assumption is transferred to research design and collection of data.

A convenient sample was chosen, and structured questionnaires containing predominantly closed-ended or forced choice questions were administered.

Participants freely indicated by ticking a relevant box next to information given that ideally exposed the scenario at his/her school. Figure 3.3 below represents methodology summary adopted from Polhill (2010).



**Figure 3.3 Methodology summary**

Source: Polhill (2010)

Questionnaire design is indicated as an initial level that covers testing and validation in the methodology summary by Polhill (2010). Participants at this level were a targeted group. This was followed by the actual conducting of interviews, in which distribution and collection of data were executed. Subsequently, data reduction was processed, then grouping of similar data responses and differences were executed. From this process, quantitative data analyses and findings surfaced. This will then result in the framework of re-modelling the pre-existing model of practice, thus providing the new version. The inspection was expected thereafter.

### **3.5.1 The Research Instrument's Reliability**

According to Portland State University Student Affairs Assessment (2010) reliability is the consistency of estimation, or how much an instrument measures a similar way every time it is utilized under a similar condition with similar subjects. To put it plainly, it is the repeatability of estimation. A measure is viewed as dependable if a man's score on a similar test given twice is comparable. Remember that dependability is not measured, but rather is assessed, cited by Wise (2011). Reliability is commonly estimated in two ways: test/retest and internal consistency. Wise (2011) further highlights the primary difference between the two tests, the first one comprises of two measurement instrument administration and that is test and retest, while method of internal consistency comprises a single measurement instrument administration. According to Mohamad, Sulaimanb, Chee Sern and Sallehd (2014), reliability can be more easily understood by identifying the testing methods for stability and consistency. A questionnaire can be reliable but invalid, but a valid questionnaire is always reliable Venkitachalan (2015). Therefore the validity of a research questionnaire is essential.

Validity is defined as the extent to which a concept is accurately measured in a quantitative study (Heale 2015). Validity is portrayed as a degree to which an examination think about measures what it expects to quantify. There are two primary sorts of validity, interior and outside. Internal legitimacy alludes to the legitimacy of the estimation of test itself, though external validity alludes to the capacity to sum up the discoveries to the objective populace. Both are vital in investigating the suitability, importance and convenience of the research study (Gravetter and Forzano 2009). Mason and Bramble (1989), alluded to three fundamental approaches to validity of tests and measures: content validity; construct validity and criteria-related validity. This research adopted basic approaches for the validity and reliability of the research instrument. The three fundamental approaches to validity were engaged in the study for the systematic development of a questionnaire used. For content validity, a group of a school management team, from a target group, participated during the construction of a questionnaire. Thereafter, the questionnaire was refined according to the outcomes and expectations.

Errors that were posing challenges on validity and reliability of the instrument during the construction of a questionnaire were critically diagnosed and rectified.

Validity and Reliability differs by definition. Reliability can be viewed as the estimation for measurement in consistency or the accuracy in measurement of an instrument to repeatedly measure same thing or similar subjects when used and still produces the same results. While Validity refers to the exactness of measurement each time it is applied in measuring subjects or things to be measured.

### **3.5.2 Pre-testing and Validation**

Piloting and pre-testing are useful in the sense that questionnaires leading to biased answers or confusing questions or senseless questions to participants, are identified through the process (Bullen 2015). The critical role in the construction of the research questionnaire is played by pre-testing and validity.

The research instrument was tested in terms of whether it was accomplishing the objective for which it was intended, including wording and clarity. There are a number of researchers addressing the issue of pre-testing and validation that have been cited by Rothgeb (2007). All of these researchers tried to address concerns related to evaluation of questionnaires, and in the process tried to determine possible strengths and weaknesses. The consensus was that the questionnaire pre-testing and validity must answer the following questions:

- Does each question measure for what it was intended?
- Are all terms clear and understandable by respondents?
- Do the respondents interpret questions in the same manner?
- Is there any positive impression created by questionnaire such that respondents are motivated to answer?
- Is there any biasness from the researcher that is suggested by the nature of formulated questionnaires?
- How long does it take to complete the questionnaire?

A group of 9 school principals were engaged as a pilot sample for pre-testing a survey questionnaire. The pilot questionnaire was delivered to their schools and an appointment was secured for meeting the group at a mutually convenient venue.

The feedback from that exercise, after consulting more on question formulation, assisted in shaping survey questionnaires to achieve the purpose for which they were intended.

### **3.5.3 Data Analysis**

Quantitative information examination is an efficient way to deal with examinations amid which numerical information is gathered as well as the scientist changes what is gathered or seen into numerical information. It frequently portrays a circumstance or occasion; noting the "what" and 'what number of' inquiries concerning something (Bryman 2006). The revealing of rundown results in numerical terms with a predetermined level of certainty, is empowered by quantitative logical approach.

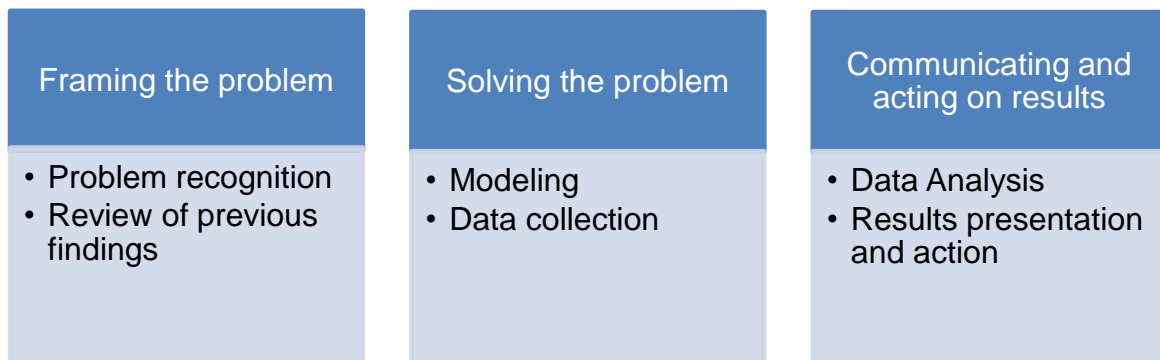
Muhamed and Yaakub (2013) mentioned that quantitative data analyses is a technique used by researchers to translate the research data into numerical forms which is then subjected to statistical analysis. The representation in a numerical form and use of observations play an important role in describing and explaining the phenomena that those observations reflect (Babbie, 2010).

The research operational map in figure 3.3 under data analysis stage reveals the following: the first operation as grouping of responses according to the similarities; secondly was the data analyses according to responses; finally the views analyses. The data was representing the opinions, feelings, values and status of infrastructure and facility management at iLembe district schools. The information received from the principals, through questionnaires about infrastructure and facility management on educators and learners, was considered as a reliable source for analysis and interpretation, since they are hands-on and engaged on a daily basis.

In contextualising data analysis, it is worth mentioning that in quantitative studies, the researcher often is the instrument, relying on his or her skills to collect information from participants in natural contexts, and employs both descriptive and exploratory procedures to uncover and explain the meaning of the shared information (Suter, 2012).

In order to present meaningful interpretation, vast information was gathered from the responses through questionnaires and sequentially analysed.

Fantigrossi (2013) alluded to three stages and six steps of components for data analysis that was adopted in this study, which is presented in Figure 3.4.



**Figure: 3.4: Components of data analysis**

Source: Fantigrossi (2013)

Stage 1 was framing the problem that encompasses problem recognition as the first step, and review of previous findings as the second step. Stage 2 involves solving of the problem which was characterized by modelling and data collection. The last stage was communicating and acting on results that involved data analyses and results presentation, and action.

The data was condensed for the purposes of manageability being converted so that it can be made understandable in terms of the research issues in question. The format of data display could be a broad portion of text or a diagram, as well as a chart that provides a new aspect of positioning and thinking about textually implanted data. The formation of systematic patterns and inter-relationships extrapolated from the data are then conveyed to the analyst for detailed analyses process. From systematic patterns and inter-relationships from data collected, a guiding theme will manifest itself, thus pointing to a frame of reference in order to overcome the challenges on infrastructure and facility management in schools.

### **3.6 CONCLUSION**

Outlined in this chapter was: a research model, methodologies, strategies and design that were adopted in the study. Furthermore, there was an outline of procedures; data collection tools; participants; data collection; and analysis approach. The chapter also provided the outline of stages involved in: data collection process; a detailed operational map; research design; methodology summary; and components for data analysis. Joseph (2014) alluded to quantitative data as always numeric. This implies that graphs and charts could be used to analyse the percentages and statistics gathered during data analysis. Numerical data analysis permits one to make sense of any data that is currently available. Most data revealed by quantitative methods are less prone to prejudice and can often be generalised to fit a larger sample size than the data from which it was collected. The next chapter will present the data collected through the chosen research instrument.

## **CHAPTER FOUR**

### **PRESENTATION OF DATA**

#### **4.1 INTRODUCTION**

This chapter will reflect the data as obtained from the research instrument. A questionnaire was utilised as a major instrument for data collection in this study. The questionnaire was designed in such a way that it should respond to the research questions. A total of 100 high schools out of 123 high schools within the district were targeted. The principals or school management team members were particularly targeted as relevant participants. Out of 100 questionnaires distributed, only 98 were collected and the 2 outstanding questionnaires were claimed to have been left by a participant at the circuit office, and was misplaced there. The data to be presented will be mainly quantitative. Descriptive statistics results will be presented as pie charts, graphs and tables.

#### **4.2 THE SAMPLE SIZE**

The questionnaires were successfully distributed to all 100 targeted school principals. The district was highlighted earlier in chapter 3 as divided into 4 municipalities. 25 schools were selected from each municipality. As indicated in the introduction, 98 responses were registered out of 100 expected. 70% of schools were from deep rural areas, while the remaining 30% from semi-rural areas.

#### **4.3 THE RESEARCH INSTRUMENT**

The investigating instrument comprised of a preface section with 3 questions, followed by sections A to F with a total of 47 questions, and section G, an open section, enquiring about further challenges experienced by participants. The sections were designed to capture data on the following concerns of the study:

Preface section: It had 3 questions. The first one capturing data about the school age, the second about the area in which the school is situated, and lastly whether the school does have mobile classes.

Section A: In this section there were 10 questions regarding health and safety standards and situations in schools.

Section B: This section had 8 questions capturing data based on the level of safety within the infrastructure and the surroundings in which the school is situated.

Section C: 9 Questions in this section were based on assessing the environmental state of learning based on present Secondary schools' infrastructure.

Section D: The data captured in this section was about the state and features of infrastructure for the school.

Section E & F: These sections captured the data on the extent to which schools are supported towards infrastructure planning and facility management.

Section G: This section was collating data on further challenges experienced by participants.

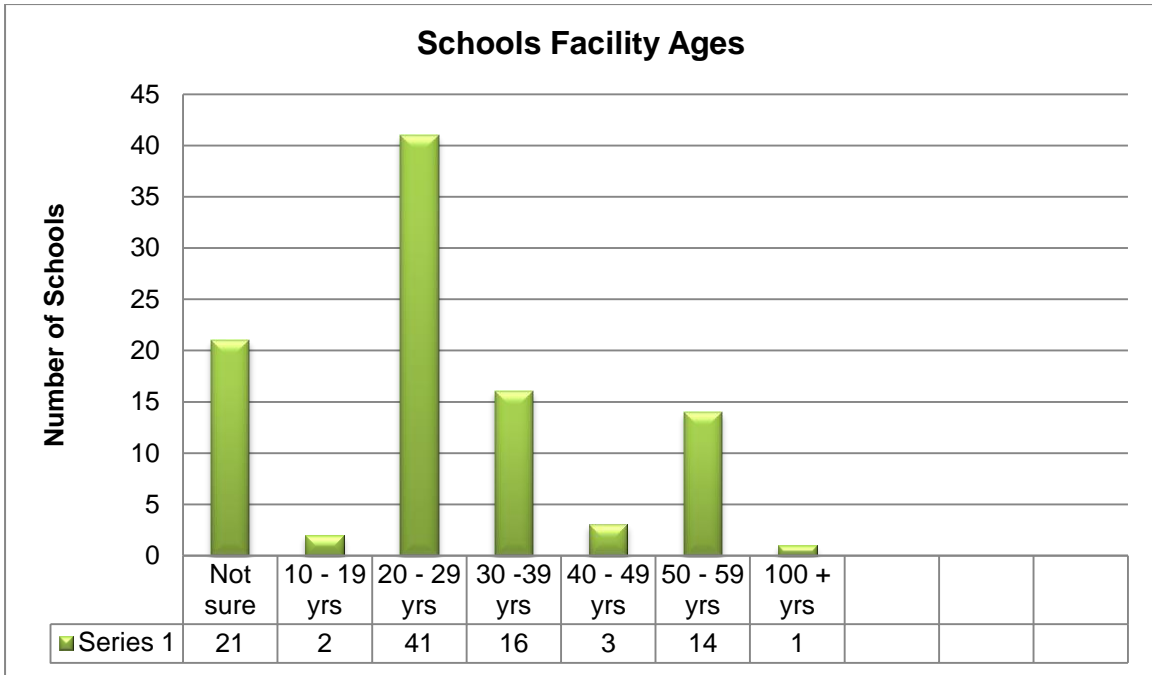
#### **4.4 PARTICIPANTS' DATA DESCRIPTION**

##### **4.4.1 School Facility Ages**

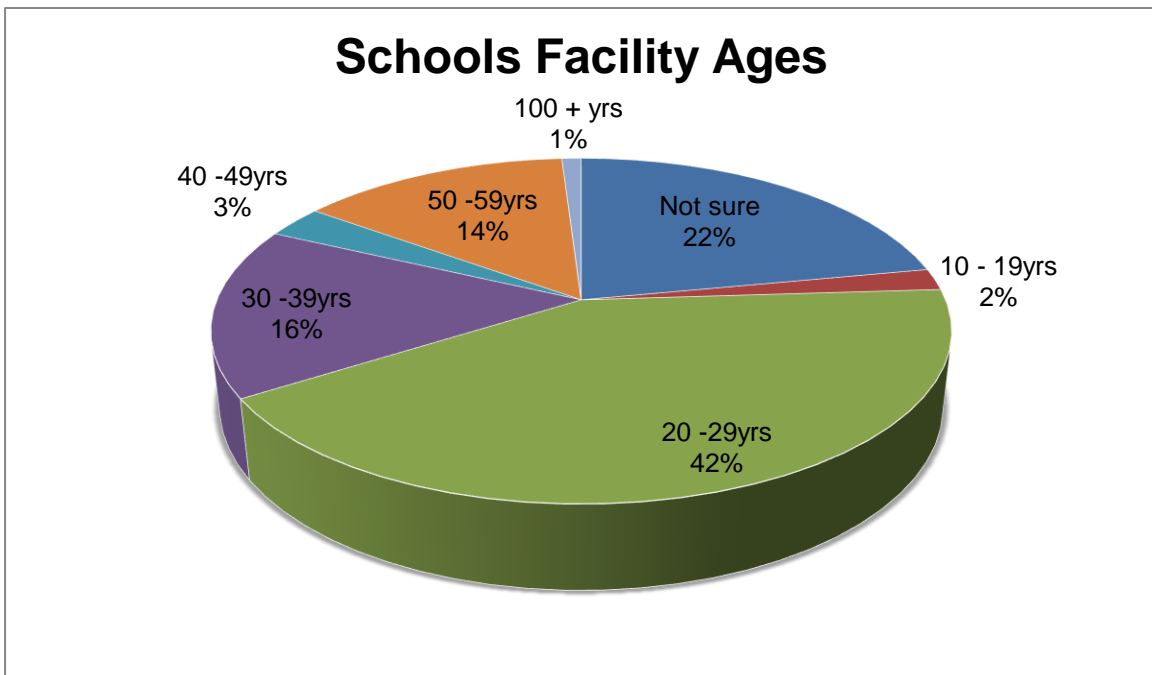
The image of a school infrastructure plays the most important role towards the learners' sense of belonging, pride and responsibility. Thus a positive psychological effect is inculcated which result in positive results outcomes. It was therefore important to investigate the data that was going to provide the information on the age of schools at ILembe district; furthermore, the effects of their status. According to Earthman (2008) later research (analysing understudy accomplishment scores with school offices' quality evaluations, and utilizing the rate of understudies in free and lessened value lunch programs as a way to control for financial status) has uncovered contrasts of in the vicinity of 5 and 17 percentile focuses in accomplishment scores of understudies in utilitarian structures, when contrasted and scores of understudies in schools with poor offices, in the wake of controlling for financial status.

Figure 4.1 and 4.2 illustrate the data as captured on the schools age facilities.

Data was grouped according to the following groupings: not sure of the age; 10-29 years; 30-39 years; 40-49 years; 50-59 years; 100 plus years. No schools were found between the ages 60-89 years.



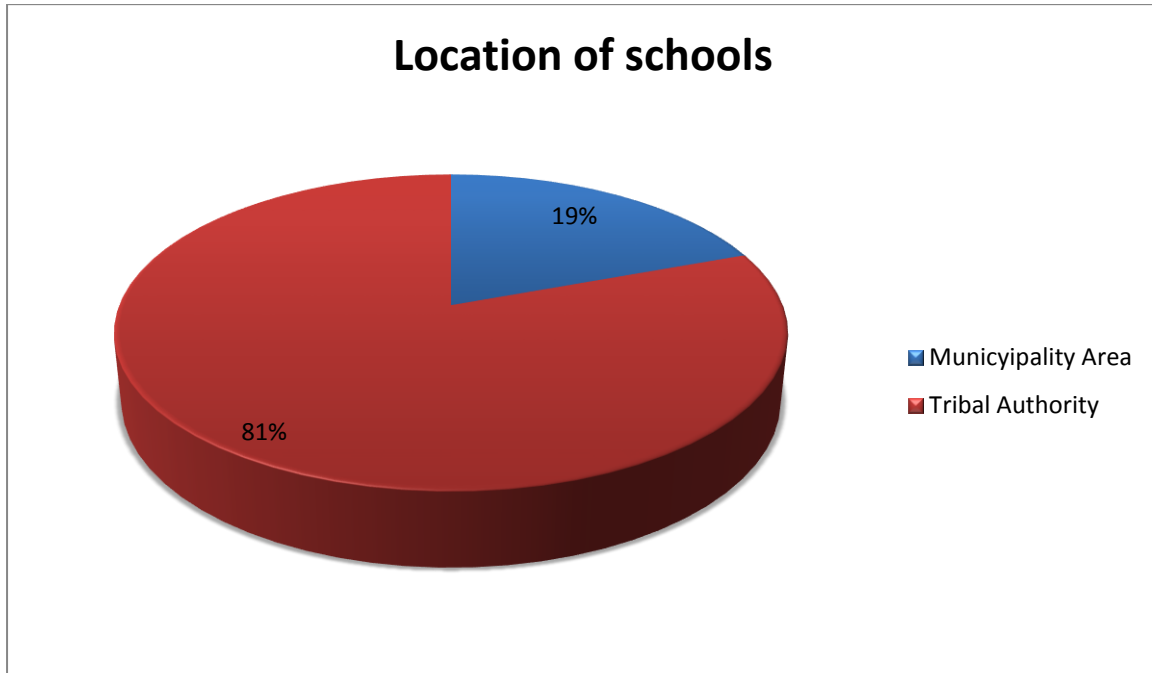
**Figure 4.1 Ages of school facilities**



**Figure 4.2 Composite of school facility ages**

#### 4.4.2 Areas in which the schools are situated

As highlighted in chapter 3 iLembe district is mostly deep-rural. Figure 4.3 demonstrates the location of schools under iLembe district, whether they are found mostly in municipal areas or in tribal authority areas.

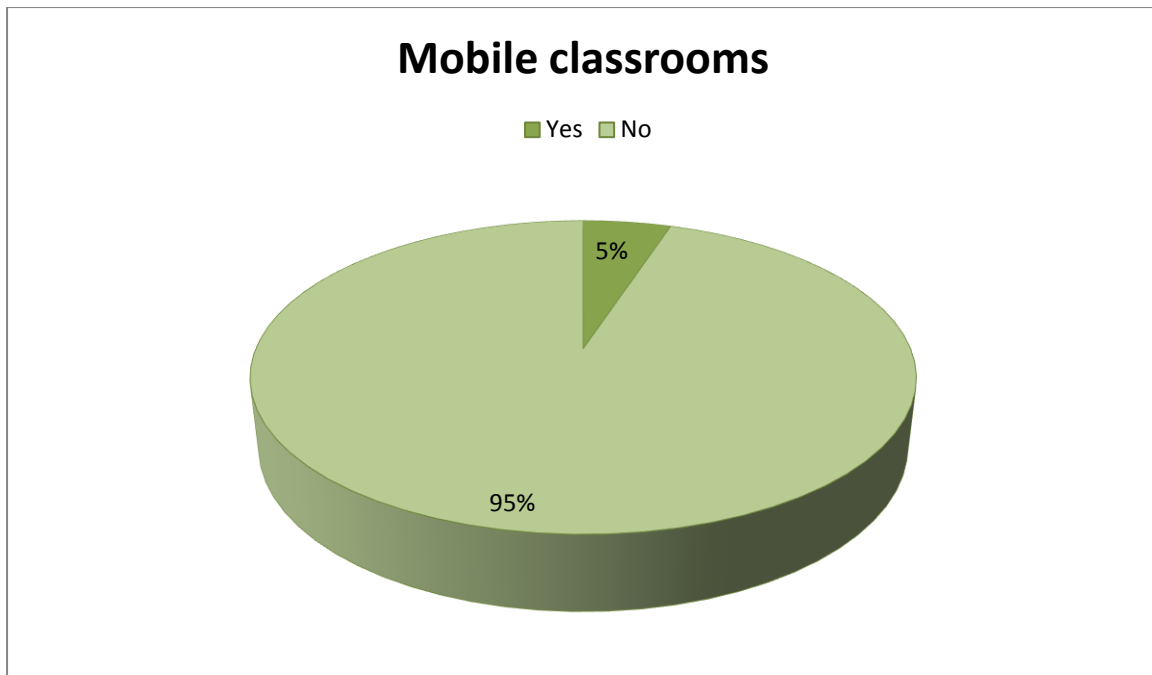


**Figure 4.3 Location of schools**

#### 4.4.3 Availability of mobile classrooms

The mobile classrooms concept has assisted the schools, mostly in disadvantaged areas, by providing mobile classrooms during the shortages of classrooms period. Mobile classrooms have temporarily surfaced as solutions while the department of education appear to be behind schedule in building outstanding schools for the communities.

Figure 4.4 shows the percentage of the schools that have indicated whether or not they have mobile classrooms.



**Figure 4.4 Status of mobile classrooms in schools**

#### **4.4.4 Health and safety standards in secondary schools.**

According to Masitsa (2011) inquire about overwhelmingly proposes that compelling teaching and learning can happen just in a sheltered and secure school environment which is each group's yearning for its kids.

Health and safety issues contribute immensely to the well-being of all the stakeholders involved in the school. According to the DoE National Safety School Framework (2015) schools have to be an infallible position which promotes learning at all levels. Totting up, schools are primary socializing institutions roam mewn solely aid learners to experience academically, but also teach them how to form healthy and productive relationships. Schools note support as an A- coordination to carry out security and bloodshed obstruction programs lapse can have long-term constructive effects on all learners.

Table 4.1 illustrates the data according to the responses captured in a research questionnaire, on indicated aspects of health and safety issues.

**Table 4.1: Health and Safety in schools**

<b>STATEMENTS</b>	<b>YES</b>	<b>NO</b>
1. Do the school have a fully functional health and safety committee?	<b>47</b> <b>(47.96%)</b>	<b>51</b> <b>(52.04%)</b>
2. Is there enough of an effort towards prevention of safety challenges?	<b>59</b> <b>(60.20%)</b>	<b>39</b> <b>(39.80%)</b>
3. Are the relevant resources available, both human (counsellors) and physical (first-aid kits), to cope with safety challenges?	<b>37</b> <b>(37.76%)</b>	<b>61</b> <b>(62.24%)</b>
4. Are there any anti-bullying programs in place in the school?	<b>32</b> <b>(32.65%)</b>	<b>66</b> <b>(67.35%)</b>
5. Do you have a fully equipped and functional sick room at the school?	<b>16</b> <b>(16.33%)</b>	<b>72</b> <b>(73.47%)</b>
6. Do you have effective Drug abuse control measures in your school?	<b>51</b> <b>(52.04%)</b>	<b>47</b> <b>(47.96%)</b>
7. Is the workplace protected from rodents and insects?	<b>23</b> <b>(23.47%)</b>	<b>75</b> <b>(75.53%)</b>
8. Do you have a special storage place for hazardous materials?	<b>19</b> <b>(19.39%)</b>	<b>79</b> <b>(80.61%)</b>
9. Are there any fire extinguishers in the school?	<b>67</b> <b>(68.37%)</b>	<b>31</b> <b>(31.63%)</b>
10. Do people with disability have complete access to all areas?	<b>09</b> <b>(9.18%)</b>	<b>89</b> <b>(90.82%)</b>

#### **4.4.5 The level of safety within the school infrastructure and the surroundings**

The National School Safety Framework (2015) states it clear that: on the off chance that the school capacities at ideal levels, it can be an extraordinary source in achieving substantial fragments of the populace, for example, learners, relatives, group individuals, and school bolster staff. Schools give a few administrations to learners, a number of which have components of existing projects offered in the group – this permits the school to be the beginning stage for embracing a more coordinated way to deal with wrongdoing and brutality counteractive action

Table 4.2 demonstrates the responses of participants on issues of safety within the school infrastructure, as well as with neighbouring communities.

**Table 4.2 Safety levels within the school and in the community**

<b>Statements</b>	<b>Very Safe</b>	<b>Safe</b>	<b>Neutral</b>	<b>Unsafe</b>	<b>Very Unsafe</b>
1. How safe do you find your workplace?	00 0%	12 (12.24%)	26 (25.53%)	37 (37.76%)	23 (24.47%)
2. How safe are both learners and educators from crime perpetrators within the community in which the school is situated?	00 0%	11 (11.22%)	39 (39.80%)	31 (31.63%)	19 (19.39%)
3. What is the level of safety for female learners from sexual harassment by culprits within the school?	00 0%	39 (39.80%)	33 (33.67%)	19 (19.39%)	08 (8.16%)
4. Indicate the level of security within the premises of the school	00 0%	21 (21.43%)	36 (36.73%)	16 (16.33%)	25 (25.51%)
5. Parking of the staff cars	00 0%	09 (9.18%)	37 (37.76%)	23 (23.47%)	29 (29.59%)
6. Safety measures of crime prevention e.g. alarm system, burglar guards, etc.	00 0%	14 (14.29%)	24 (24.49%)	27 (27.55%)	33 (33.67%)
7. Is the school furniture and equipment for learners safe for usage	00 0%	38 (38.78%)	25 (25.51%)	29 (29.59%)	06 (6.12%)
8. Safety of the physical building condition of the school	00 0%	45 (45.92%)	22 (22.45%)	19 (19.39%)	12 (12.24%)

#### 4.4.4 The environmental learning state based on present Secondary schools' infrastructure

Fundamentally, the business that schools are expected to offer is to afford learners with a conducive environment for learning that is secured, considerate, and open. Such environment for learning enhances the welfare and further reveals progressive school philosophy which enables it to be a sensational, welcoming and stimulating place to belong. Therefore learning environment is crucial for successful production of desired results in the teaching process.

Figures 4.5.1 to 4.5.9 show the results captured from the data extracted from the research instrument on issues of learning environment based on the status of present infrastructures.

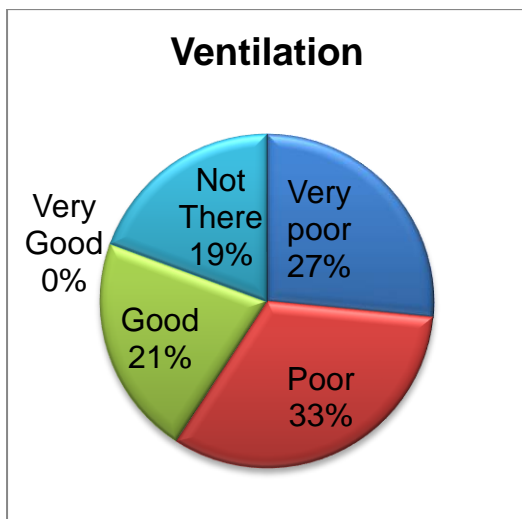


Figure 4.5.1 Ventilation composition

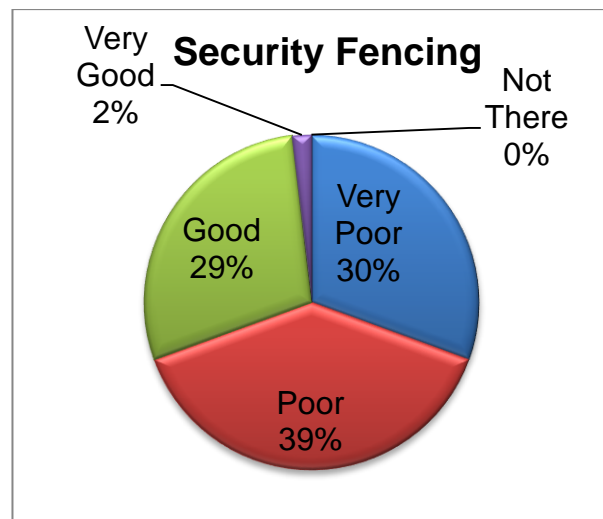


Figure 4.5.2 Security fencing configuration

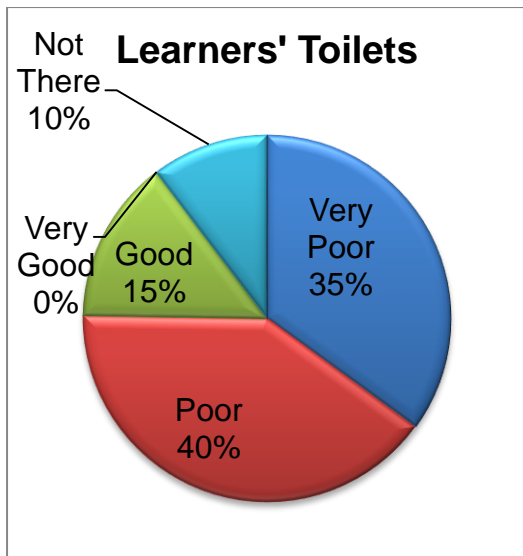


Figure 4.5.3 Learners' toilets outline

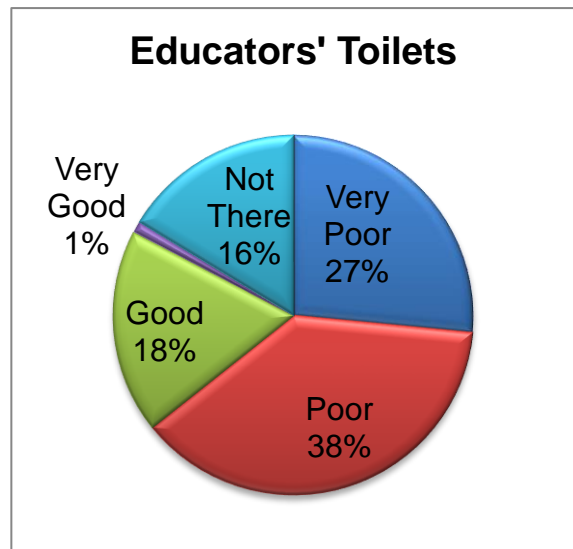


Figure 4.5.4 Educators' toilets composition

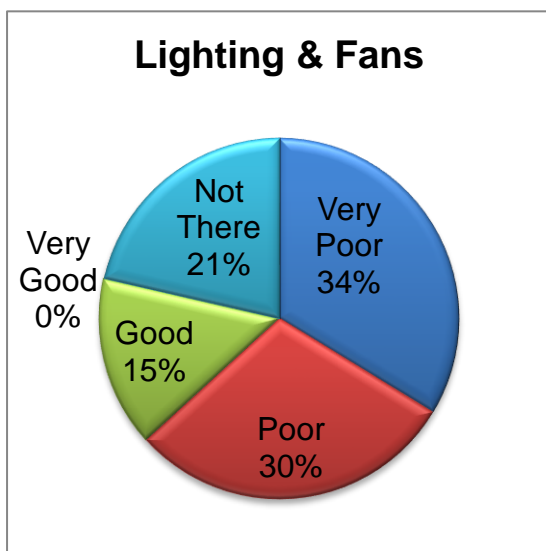


Figure 4.5.5 Lighting & fans reflection

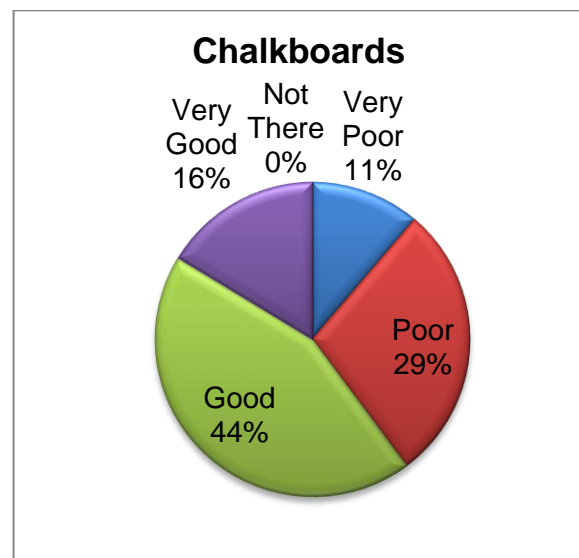


Figure 4.5.6 Chalkboards illustrations

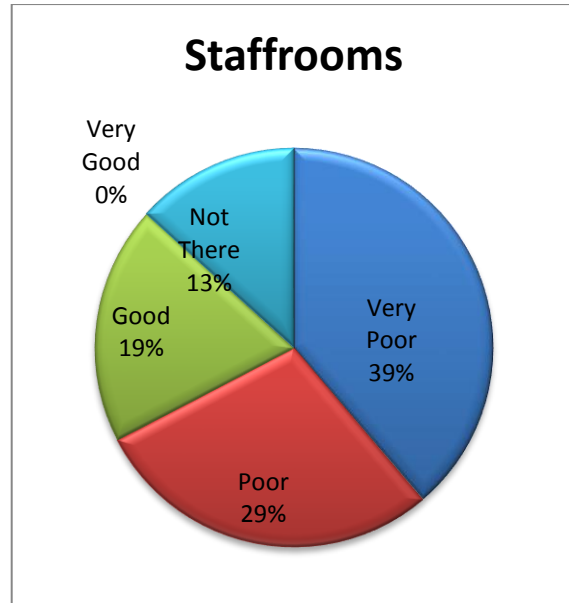
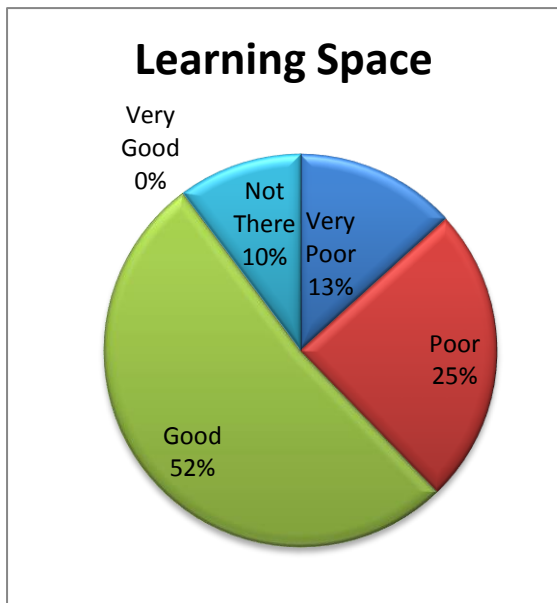


Figure 4.5.7 Learning space composition

Figure 4.5.8 Staffrooms outline

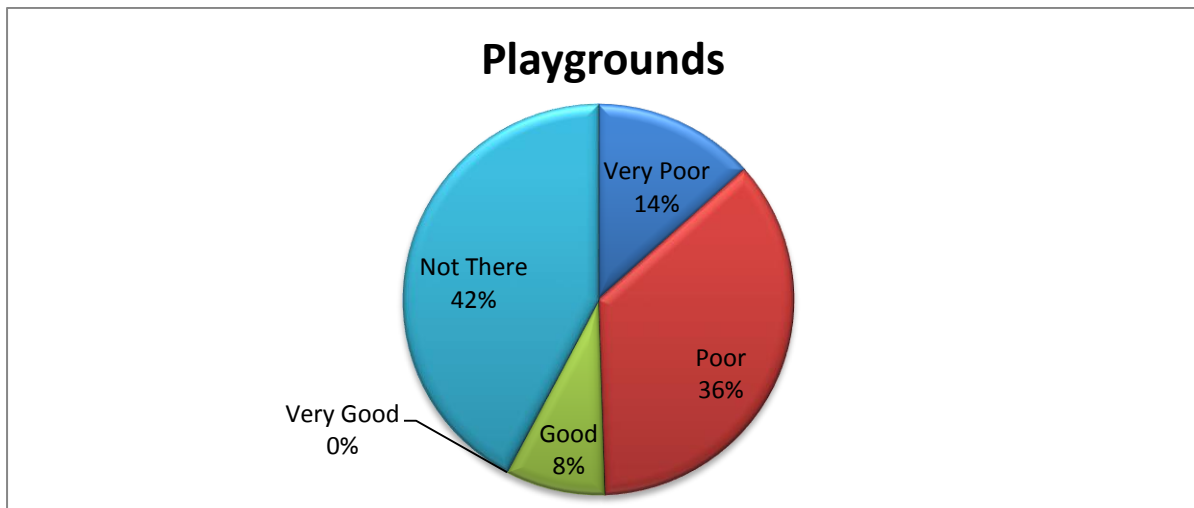


Figure 4.5.9 Configuration of playgrounds

#### 4.4.5 The state and features of infrastructure for the school.

The survey questionnaire was evaluating the status and condition of schools infrastructure. A good school infrastructure would include: good condition building with sufficient amount of classrooms that are well-organized, chairs, adequate blackboards, benches, tables, desks, a satisfactory number of sanitation offices, access to satisfactory clean drinking water, power, ventilation and light, fire ways out and emergency treatment pack, restorative help, flask, adequate entertainment ground, library, laboratory, and computer facilities (Swapna Lahon 2015). Figure 4.3 illustrates infrastructure status through captured data.

**Table 4.3 Infrastructure Status**

<b>Building Features</b>	<b>V/Good</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>	<b>V/Poor</b>	<b>Not Available</b>
1. Roofs	11 11.22%	26 26.53%	07 7.14%	37 37.7%	13 13.27%	00 0%
2. Plumbing	05 5.10%	06 6.36%	11 11.22%	18 18.37%	23 23.47%	35 35.71%
3. Windows	00 0%	23 23.47%	28 28.57%	31 31.16%	16 16.32%	00 0%
4. Doors	00 0%	15 15.30%	26 26.53%	33 33.67%	24 24.49%	00 0%
5. Electrical power	00 0%	10 10.20%	38 38.78%	29 29.59%	21 21.43%	00 0%
6. Framing & Foundation	02 2.40%	11 11.22%	26 26.53%	29 29.59%	30 30.61%	00 0%
7. Intercom	00 0%	16 16.32%	09 9.18%	00 0%	11 11.22%	63 64.29%
8. Interior Finishes	00 0%	03 3.06%	35 35.71%	39 39.80%	18 18.37%	03 3.06%
9. Air-conditioning or Fans	00 0%	04 4.08%	01 1.02%	01 1.02%	18 18.37%	74 75.51%
10. Furniture & Equipment	00 0%	10 10.20%	46 46.94%	26 26.53%	16 16.33%	00 0%

#### 4.4.6 Estimation period taken by DoE to give support after reports about facilities

The data composition in figure 4.5.10.1 and 4.5.10.2 illustrates the period the department of education takes to respond to the requests and reports submitted by schools on matters pertaining school facilities.

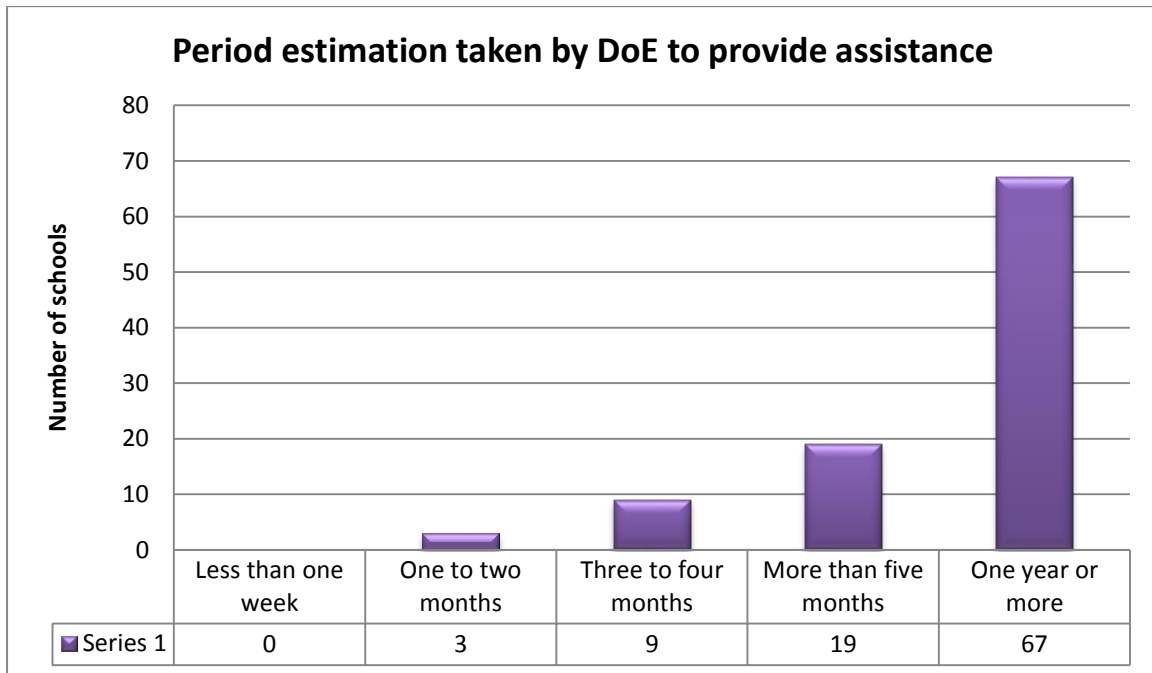


Figure 4.5.10.1 DoE estimated period of response to infrastructure matters

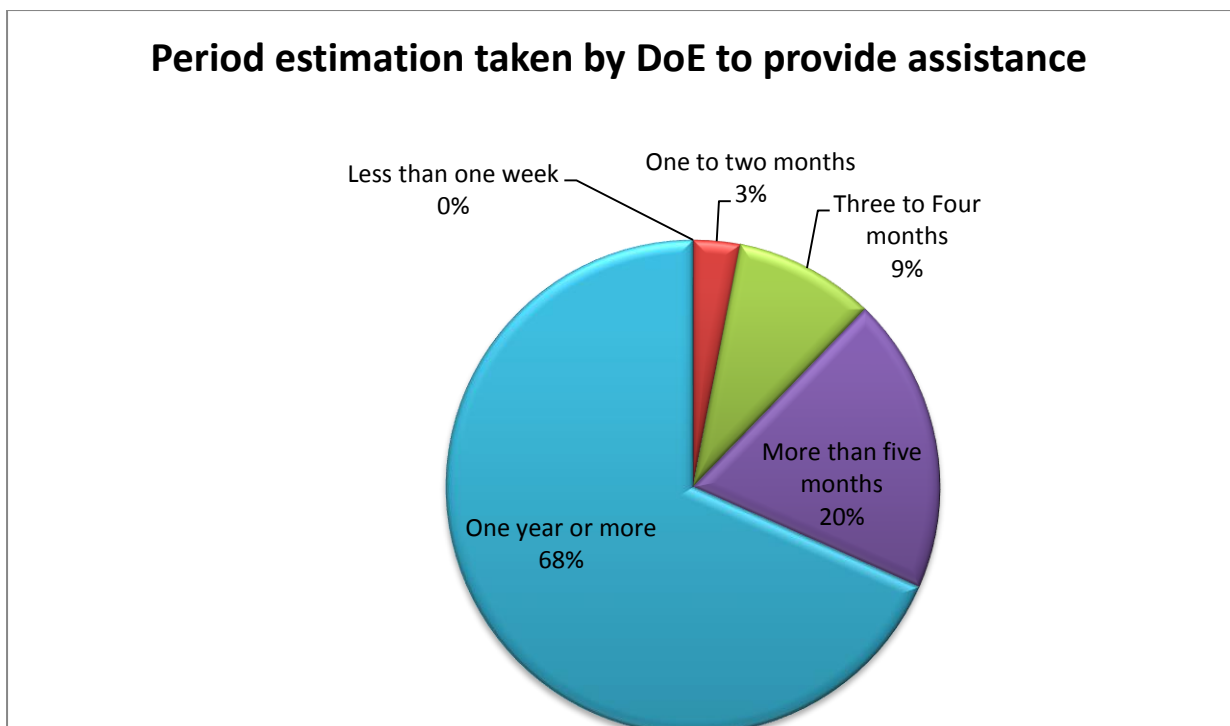


Figure 4.5.10.2 DoE response rate

#### 4.4.7 Urgency on attending to repairs and renovations

Figure 4.5.11 reflects the response rate by the department of education on matters of repairs and renovations. This includes challenges caused by storm damaged classrooms, roofs blown off by wind, broken windows either through vandalism or community thieves break-ins.

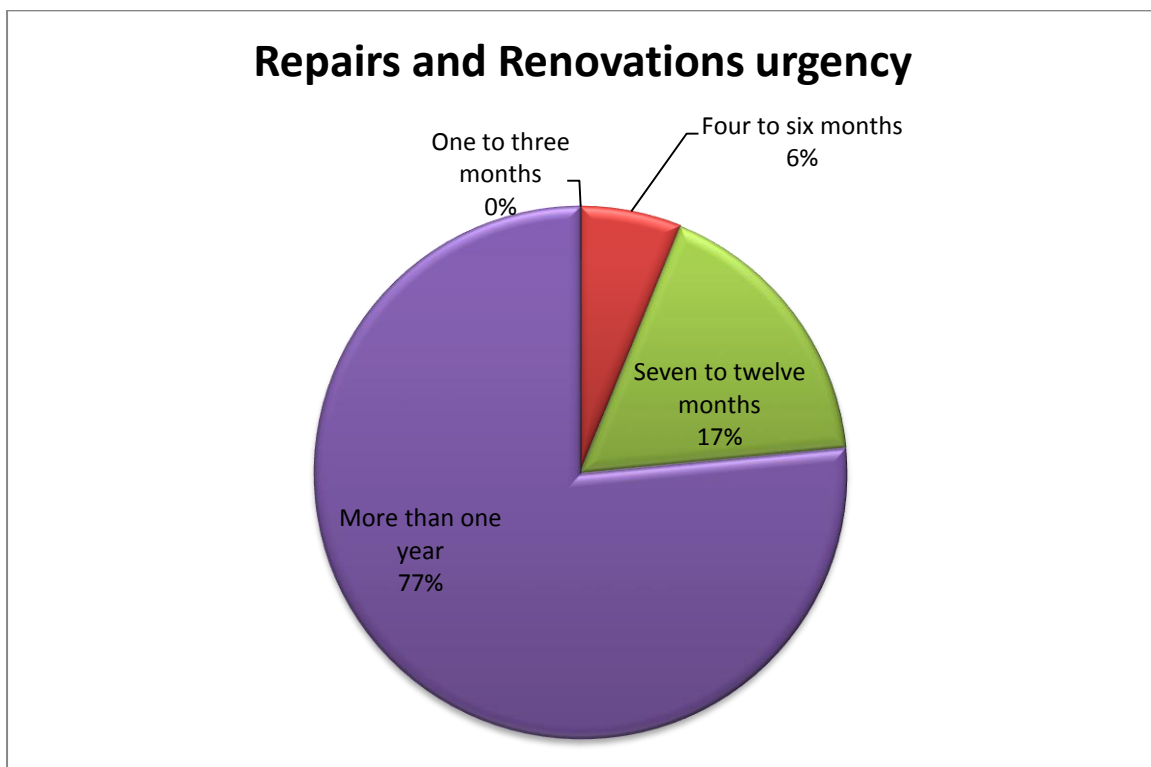


Figure 4.5.11 Composition of Urgency to repairs

#### 4.4.8 Principals' input on facility and infrastructure management in schools

The participants had a number of inputs on the challenges they are faced with on issues of facility and infrastructure management in schools. The last section of a survey instrument was aimed at capturing independent opinions of participants on the matters in question. Common inputs were grouped together and Table 4.4 illustrates challenges and barriers frustrating participants on matters of facility and infrastructure management. The table will summarise points raised by participants. Out of 98 participants only 48 have participated in filling-in their independent opinions on the last section of the questionnaire.

**Table 4.4 Challenges and barriers frustrating schools on matters of facility and infrastructure management.**

<b>Participants' Views on Challenges</b>	<b>Participants sharing the same views</b>	<b>Percentage</b>
1. The school have sensitised the department about overcrowding hence the need built more classrooms.	19	40%
2. The school is without an administration block	16	33%
3. There is no school hall. The school needs a hall.	12	25%
4. Hazardous state of learners' toilets that was reported and a need to build new toilets	11	23%
5. School is without laboratories	17	35%
6. The department of education is failing the school on issues of infrastructure management by lacking on visible support as well as lengthy delays on requests.	31	65%
7. The department seem not to be prioritising infrastructure improvements, repairs and renovations. Reports have been submitted two years ago and until now nothing has transpired.	36	75%
8. The school is without a sport field	21	44%
9. The school have had several break-ins due to poor security measures in place and absence of the security after hours.	19	40%
10. The school requested mobile classrooms two years ago until now nothing has happened	19	40%
11. Educators' staffroom too small such that educators utilise learners' classrooms as their staffroom.	14	29%

#### **4.5 SUMMARY**

Presentations of results in this chapter were according to the research questionnaire which was also addressing research objectives. The data results are also presented as they were captured in the format of addressing the following research questions:

- What are the resources present in pursuit of improved health and safety standards?
- How are infrastructure and learning environment being maintained in secondary schools?
- What are the impacts of learning environment and infrastructure on educating and learning in auxiliary schools?
- Do schools get enough support towards infrastructure planning and facility management?

Illustrations have been presented in the form of Tables and Pie graphs showing percentage for the findings. There are a number of conditions or situations that were exposed by illustrations during the presentation of data that will be engaged through discussions in the next chapter.

## **CHAPTER FIVE**

### **DISCUSSION OF RESULTS**

#### **5.1 INTRODUCTION**

In this chapter the findings illustrated in chapter 4 will be discussed, interpreted and analysed based on impact of effective schools Infrastructure and Facility Management on Learners and Educators in iLembe district. The analyses of the findings will be providing solutions to the following research objectives of the study:

- Evaluating health and safety standards in secondary schools in iLembe District;
- Analyses of the effects of infrastructure management in iLembe District;
- Assessing the environmental learning state based on present secondary schools' infrastructure at iLembe District; and
- Evaluating the extent to which schools are supported towards infrastructure planning and facility management in iLembe District.

#### **5.2 DESCRIPTION OF PARTICIPANTS' DATA**

##### **5.2.1 School Facility ages**

The age of any facility sensitizes safety measures to be taken in order for the wellbeing of all people using that facility or infrastructure. The older the building, the renovation-need becomes crucial for health and safety purposes. It was surprising in Figure 4.1 to discover that 22% of participants, being managers of their institutions, were not sure about the age of the schools they manage. The ages of schools' infrastructure are: 18% above 40 years, 60% below 40 years, and 22% were not sure about the age of the buildings of their schools, in (Figures 4.1 and 4.2).

The Leading Practice Institute (2016) alludes to facilities lifecycle as the progress whereby there are evolving changes on which the infrastructure develops, around the issues of improvement and transformation during the lifetime of its lifecycle.

Infrastructure lifecycle consist of a series of sequential phases or steps in which each phase uses the results of previous one:

e.g. Infrastructure analyses, Infrastructure strategy, Infrastructure component and Infrastructure service definition, Infrastructure operations, Infrastructure improvement and changes.

Therefore, for implementation and continuous infrastructure improvement purposes, the developers use the results of each phase. Consequently the age of facilities plays a crucial role towards sequential adherence to the phases in the lifecycle of a particular facility for health and safety purposes.

### **5.2.2 Location of schools**

Captured data in Figure 4.3 reveal that 81% of schools are located in tribal authority areas, while 19% are located in municipality areas. This substantiates the fact that iLembe district is dominated by deep-rural areas. Schools located in rural areas tend to receive minimum attention, or not prioritised on issues of urgent attention, by either District, Provincial or National authorities. According to the DoE User Asset Management Plan (2017/2018), the demand for new schools in rural areas has generally been less technically determined. The greatest determining factor for a new rural school is usually a consequence of new communities being established after successful land claims and land restitution. In most such cases the sizes of the schools required are difficult to determine as the number of families returning to the area and the rate of return is unknown. A thorough feasibility study is consequently required before a school is registered and prioritised.

It is through such views that schools located in deep-rural areas receive less or no attention on issues of Facilities and Infrastructure management. The location becomes a determinant factor of service delivery.

### **5.2.3 Mobile classrooms status**

The data in Figure 4.4 reflected that 95% of schools are without mobile classrooms yet 40% of participants have reported overcrowding and requested temporary mobile classrooms, while waiting for construction of new classrooms processes. Only 5% have indicated that they do have mobile classrooms.

According to National Education Infrastructure Management System (NEIMS) data and applying the Norms and Standards regulations of 1 classroom per 40 learners, there is an accommodation shortage of 5747 classrooms throughout the province.

The Department also has a challenge in trying to keep a balance between the need to construct new schools, and upgrading or adding facilities to existing schools to cater for over-crowding (DoE User Asset Management Plan 2017/2018). This seems to be an insurmountable frustration with which the department of education is faced

#### **5.2.4 HEALTH AND SAFETY STANDARDS IN SECONDARY SCHOOLS**

In the DoE on Health and Safety Report (2014), Under the Health and Safety: Advice on legal duties and power, specify that it is the responsibility of the employer in a school situation to ensure safety levels for both learners and educators. This is applicable to activities within and outside school premises. The 2014 Health and Safety Report on employees at work expect the following by employers:

- Evaluating risk exposure to members of staff and other people who are affected and involved in school activities, thus identifying necessary safety and health measures there by keeping significant record of findings for the assessment;
- Presenting risk management measures;
- Liaise with employees on issues of measures to be engaged based on risks discovered; and
- Adequate Health and Safety training programs are implemented to employees (Health and Safety Report, 2014).

According to Masitsa (2011) inquire about overwhelmingly proposes that compelling instructing and learning can happen just in a sheltered and secure school environment which is each group's yearning for its kids.

The findings, as reflected in Table 4.1, reveal that 52% of schools do not have a fully functional health and safety committee. Committees are there for compliance purposes - they are not functional.

Furthermore, 62% of schools do not have relevant resources available, both human (counsellors) and physical (first-aid kits), to cope with safety challenges. 67% do not have anti-bullying programs in place in the school. By the same token, 73% do not have fully equipped and functional sick- rooms at the school.

At least 52% of schools have effective Drug abuse control measures in their schools, which is pleasing. However, there is a need for more effort to be afforded to drug and substance abuse in schools. 75% of schools do not have their workplaces protected from rodents and insects, exposing the lives of learners, educators and supporting staff to insect-related diseases. 81% schools are without special storage place for hazardous materials. This is detrimental to the entire workforce within the schools as well as to the lives of learners. On the contrary, it was pleasing to discover that 68% of schools do have fire extinguishers in place. Lastly, what was discouraging to discover was that 91% of schools do not have complete access to all areas for people living with disabilities.

Health and Safety matters are the responsibilities of all the officials led by the principals in a school situation. Therefore there is a need for concerted efforts.

### **5.2.5 Level of safety within the school and in the surroundings**

Safety and security in schools is not only a South African issue but also a global challenge, characterised by types of crime and violence taking place on school premises or in neighbourhoods ultimately affecting schools (Guerrero, 2006:90, cited by Gina, 2013). Without joint efforts it will be impossible to maintain safety in schools and in the community in which the school is situated.

The South African Constitution and other enactment make arrangement for the insurance of the rights and security of learners in schools. What's more, South Africa is a signatory to the Convention of the Rights of the tyke, received by the United Nations General Assembly in 1989, which makes it mandatory for individuals to pass laws and uphold measures to shield the tyke from all types of viciousness, manhandle, disregard, abuse or misuse, (Masitsa 2011). The 1996 Constitution of South Africa orders that the right of a child to be protected from deprivation, neglect, exploitation and violence, should be respected (Masitsa, 2011).

The data in Table 4.2 reflects that 38% of schools find their workplace unsafe, and 24% regard their schools as very-unsafe. This totalled to 62% of schools that considered their work place as totally unsafe which exposes the lives of learners, educators and assisting personnel, to risk.

Considering the level of safety at the school on perpetrators of crime from outside the school but within the community, 32% feel unsafe and 19% feel very-unsafe. Therefore 51% of schools are not safe at all on perpetrators of crime. On issues of sexual harassment within and outside the school, 40% feel safe. The level of safety within the schools is compromised since 26% feel very-unsafe and 16% feel unsafe; totalling 42% of schools which premises are not safe at all, thus lives of all people within the school are at risk. The school furniture equipment had 36% of schools that viewed it as unsafe to use. For the school buildings, 31% of schools felt their buildings were unsafe, according to the data captured. This situation is alarming and requires immediate intervention by the department of education.

### **5.2.6 The state of environmental learning based on present secondary schools' infrastructure.**

Learning is an association amongst reaction and boosts. A decent situation fortifies the endeavours of the instructor by giving a decent jolt to powerful educating and figuring out how to occur. Such a jolt is not just given by guaranteeing great physical plant arranging additionally through appropriate support of such physical offices, Ayeni (2012). A decent school environment, where great working offices exist, is an impetus for successful instructing and learning. In a school where there is sufficient space for the instructors to stroll around in the classroom while conveying lessons will advance riveted consideration of understudies and great scholastic execution, Ayeni (2012).

According to Ayeni (2012) there is really a general conviction that the state of a school's learning surroundings including foundation, importantly affects educators' viability and understudies' scholarly execution.

The facilities that are expected to encourage viable instructing and learning in an instructive organization incorporate the classrooms, workplaces, libraries, research centres, comforts and different structures, and also furniture things and wearing hardware.

The nature of foundation and learning environment has solid impact on the scholarly standard which is a file of value affirmation in the school.

Ventilation in a school building is one of the most important elements since it enables various hygiene and healthy factors such as the control of odour, carbon dioxide dilution, energy efficiency and air quality, and prevention of respiratory disease spread. The ventilation of air is critical in an education facility (Edwards, 2004). The data captured in Figure 4.5.1 reflect shocking results: 19% of schools infrastructure are without ventilation, 33% illustrated poor ventilation and 27% very poor ventilation system. This is a hazardous scenario in the lives of both learners and educators as well as the personnel of those schools.

School security is mandatory, according to the school safety and security policy, each and every school needs to have appropriate security measures in place in order to protect the school property and to ensure a safe and secured environment for learners and staff. The data in Figure 4.5.2 reflects that 39% of schools are fenced poorly while 30% regard their fencing as very-poor. Therefore in total 69% of schools have a poor fencing system. The absence of proper fencing of the school premises impact negatively on control measures for the school management team. It also exposes the school property to vandalism and easy break-ins by crime perpetrators.

The data in Figure 4.5.3 illustrates that the state of learners' toilets are in shambles: 40% of school toilets rate as poor and 35% very-poor. Summing-up reveals that 75% of learners' toilets are rated as poor. The worst situation is that 16% of schools are without proper toilets for learners.

Similarly, regarding educators' toilets in Figure 4.5.4, 38% are poor and 27% very-poor, totalling to 67% of schools with poor educators' toilets. Shockingly was that 16% of schools reflected there are no educators' toilets in their schools.

Surely effective teaching and learning are prone to be affected under such environmental conditions within the school.

According to Suleman (2014) classroom physical environment is a blend of various things i.e. room size, walls, floor, area of work, lighting, temperature, ventilation framework, dividers, seats, carpets, and teaching and learning aids. Educator and understudies are viewed as the primary components of the classroom environment.

Educator and learners are viewed as the fundamental components of the classroom environment.

Good physical environment has a huge constructive outcome on the effectiveness of any association and goes about as a catalysing specialist to give a straight approach to accomplishing foreordained destinations of an association, (Suleman 2014). The data in Figure 4.5.5 reveals that 30% of schools have poor lights and fans, while 34% of schools have these components in very-poor conditions, with 21% without lights and fans. According to the “Energy and Education” article the absence of power at schools is tragic, as a result of the various administrations it can give in the classroom. Lighting can empower classes to be instructed at a young hour in the morning or late during the evening. Power get to encourages the presentation of ICT into the classroom, for example, PCs and TVs. Charged schools can empower principals to enroll and hold better qualified instructors, and have been related with enhancements on both test scores and graduation rates, (United Nations Department of Economic and Social Affairs (UNDESA), 2014).

It was consoling to discover in Figure 4.5.6 that 44% of schools have their chalkboard in a good state, while 29% reflects poor conditions and 11% very-poor. Using the chalkboard in disadvantageous areas is of mutual benefit for both the teacher and learners. The use of a board makes the subject matter more narrative, easy to teach and to perceive. Concerning the learning space, the data in Figure 4.5.7 illustrates that 52% of schools have good learning space. The attention should be given to the 10% without enough learning space; 25% who have poor space and 13% very-poor learning space. The Learning space from gate to the school premises, has got an impact on the brain of a learner and it influence learners’ feelings at school as well how they perceive subject matter during teaching and learning in class (Persuad, 2014). Hence learning space plays a crucial role toward the attainment of desired results.

The poor conditions of staffrooms in Figure 4.5.8 was reflected by 29%, with 39% very-poor and 13% no staffrooms at all. There may be two split views about the staffroom issue in schools. These are sometimes regarded as a place for gossip, rumours, and possibly dissent to thrive.

While on the other hand can be a rich source of information, including professional development, somewhere to unwind, and a communication centre. Unity and team building are further possible activities that could be facilitated through the use of a staffroom.

Shocking findings was that of data in Figure 4.5.9 showing that 42% of schools do not have playgrounds; while 36% illustrate poor playgrounds and 14% very-poor. Play is the key to physical, mental, intellectual and social well-being of learners. It further impacts tremendously on almost every development aspect of learners' lives holistically and with multifaceted ways. Therefore school playgrounds are vitally important to learners for their fun and relaxation, as well as for their good health and well-being (Sharif, 2014).

### **5.2.7 SCHOOLS' INFRASTRUCTURE STATE AND FEATURES**

According to Xaba (2012) school offices can be extensively ordered into structures, grounds and administration frameworks. School structures comprise of the outside building envelope, involving the building establishment and outer dividers of structures, which, in conjunction with the rooftop, windows and outer entryways, isolate convenience from the outside environment

Re-visit data analysis as captured by a survey instrument in Table 4.3, summing the first two columns (Very good + Good) columns versus the last but two columns (Poor + Very Poor), as shown by Table 5.1

**Table 5.1 Summary of schools' infrastructure state and features**

<b>Building Features</b>	<b>Good + Very good</b>	<b>Poor + Very poor</b>	<b>Not There</b>
Roofs	38%	51%	
Plumbing	11%	42%	38%
Windows	23%	47%	
Doors	15%	58%	
Electrical Power	10%	51%	
Framing & Foundation	38%	60%	
Intercom	26%	11%	64%
Interior Finishes	39%	58%	
Air-conditioning or Fans	05%	19%	76%
Furniture & Equipment	57%	43%	

The summation of good and very good conditions of all items in Table 5.1 ranges from 5% to 39% of schools, with the exception of the state of furniture and equipment which is 57%. Scrutinising the poor and very-poor conditions, it ranges from 42% to 60%. In low percentage of poor and very-poor conditions, it is noticed that there is a high percentage of schools indicating a lack of a particular item in their school. Example: Intercom systems are in 11% of schools indicating poor or very-poor conditions, while 64% schools indicated no intercom at all.

Secondly, Air-conditioning or Fans: 19% of schools have indicated the poor or very-poor state, while 76% do not have this item in their school. From the captured data analyses, the inference that could be arrived at is that most schools under iLembe district need attention in terms of renovations and constructions.

There are a lot of imbalances on the schools' infrastructure state and features that is being noticed from the data captured at iLembe district. The poor state and features of infrastructure might lead to the following, according to Akhihero (2013):

- Many teachers no longer find their job interesting and satisfactory because of lack of facilities to carry out their job;
- The enthusiasm in both students and teachers which create effective teaching and learning is fast fading away, as a result of lack inadequate school facilities;

- Irrespective of the efforts, commitment, and enthusiasm educators might display in class but such dedication might not produce the required result in teaching, evaluation and management because his or her action to fulfil the purpose would be negatively affected by environment content.

### **5.2.8 Estimation period taken by DoE to provide assistance**

In Figures 4.5.10.1 and 4.5.10.2, 68% of schools indicated that it takes more than one year for the department of education to provide assistance on an issue pertaining infrastructure challenges. 20% of schools have indicated that it takes more than five months. This is an unacceptable situation that hinders infrastructure management in schools. There seem to be a number of stages to go through before schools are rendered the services requested.

According to Xaba (2012), various reviews demonstrate that most school administration capacities, endorsed by the South African Schools Act (Republic of South Africa, 1996), are pro and complex in nature, require authority aptitudes to execute and there is, by and large, a lack of such abilities in school representing bodies. School Governing Body (SGB) should manage and control the school's property, and structures and grounds possessed by the school, including school lodgings, yet the practice of this power must not in any way meddle with or generally hamper the usage of a choice made by the Member of the Executive Council or Head of Department as far as any law or arrangement, (KZN-DoE Maintenance Strategy 2016).

According to KwaZulu-Natal Department of Education Maintenance Strategy (2016), the KZNDoe has over the years been providing infrastructure spaces to schools in response to historical backlogs.

The maintenance of completed structures has lagged behind and the Department has deemed it important that the maintenance strategy be developed and approved. The schools can only hope that after the development of maintenance strategy, the department of education will improve their response rate on issues of infrastructure management.

The situation is almost the same on matters of urgency in attending to renovations and repairs in Figure 4.5.11:

77% of schools indicated that it takes more than one year for the department of education to provide the actual assistance when an urgent application was forwarded, while 17% indicated that it takes more than five months.

### **5.2.9 Participants' input on challenges of infrastructure management in their schools**

The outcomes of the participants' common views in Table 4.4 were as follows:

- There was an outcry from 40% of schools for overcrowding in classes. Indication is that the department has been sensitised and a request for more classes has been made. Overcrowding challenges poses threats to health and safety school environment.
- 33% of schools were indicating that they do not have an administration block; as a result administrative processes and tasks are done under unfavourable conditions.
- 25% of schools had an outcry regarding a school hall. School assembly and school functions take place in an open space outside and are not conducted during unfavourable weather conditions.
- 35% of schools are without laboratories yet they are offering subjects that demand the utilisation of laboratories.
- 65% of schools complained about the department of education failing the schools on issues of infrastructure management, by lacking on visible support as well as lengthy delays on requests.
- 75% of schools raised the concern that the department seem not to be prioritising infrastructure improvements, repairs and renovations. Reports submitted two years ago reveals nothing has transpired.
- School sports field plays a significant role towards sporting activities in which the school in participating. Not only does it keep learners fit and energetic, but sport also develops physical skills. It teaches learners to work as a team and improves self-esteem. 44% of schools are without a sports field hence deprived of the opportunities that sporting activities deliver.
- Poor security measures and the absence of security personnel after hours lead to several break-ins by crime perpetrators and vandalism.

- 40% of schools had a concern of poor security measures and the absence of security after hours.
- The data illustrates that 40% of schools have requested mobile classrooms to assist in overcrowding and in storm damaged classrooms. The indication was that two years have elapsed without getting assistance.
- Educators have, in some cases, decided to use a classroom as their staffroom due to staffroom size being too small, fitting only two tables. 29% of schools are faced with the challenges of squashing themselves in a small staffroom.

### **5.3 SUMMARY**

The presentation in this chapter was informed about fundamental factors that are challenging facilities and infrastructure management in secondary schools of iLembe district. The concern of a conducive learning environment, which includes physical environment that was displayed by captured data, was analysed and interpreted in this chapter. The next chapter will deal with recommendations and conclusion.

## **CHAPTER SIX**

### **RECOMMENDATIONS AND CONCLUSION**

#### **6.1 INTRODUCTION**

This chapter will present an analytical version of the research findings according to the data captured. The secondary research objectives highlighted in chapter two will be tied up with research findings, thus bringing closure to the study. The main intention of the study was to verify the impact of effective schools Infrastructure and Facility Management on Learners and Educators of KZNDoE, particularly at ILembe district.

#### **6.2 ACCOMPLISHMENT OF THE OBJECTIVES FOR THE STUDY**

##### **6.2.1 Objective 1: Evaluating health and safety standards in secondary schools at iLembe District.**

The findings have revealed that most schools do not have functional health and safety committees. The guiding document in relations to Health and Safety in schools by the Department of Education should be implemented by management teams. The motivation behind the guiding document is the aversion of damage to all individuals at work, and, in specific conditions, other individuals in or close to the work environment. It sets the accompanying destinations:

- to advance perfection in wellbeing and security administration through the orderly administration of wellbeing and wellbeing;
- to characterize dangers and damage to ensure they are altogether secured, and to incorporate business related anxiety and perilous conduct brought on by impermanent conditions;
- to force obligations on bosses and representatives;
- to set prerequisites for practicable strides to be taken to guarantee wellbeing and security;
- to perceive volunteers in the work put;

- to support the contribution of representatives in overseeing wellbeing and security;
- to guarantee consistence through different authorization measures.

Therefore the absence or the dysfunction of health and safety committees hinders the implementation of the objectives for the “Act” in schools at iLembe district.

According to the findings there was a challenge in schools that they do not have relevant resources available, both human (counsellors) and physical (first-aid kits), to cope with safety challenges. Health and safety resources are mandatory requirements, according to the health and safety regulation, that should be provided to schools. Furthermore, an overwhelming finding was that of the absence of fully equipped functional sick-rooms in schools, to deal with emergencies. By law schools are expected to provide a unique room for learners’ emergency injuries as well as sickness, while at school. This situation puts the well-being of learners in school at risk, thus violating their health human rights.

Drug abuse and substance abuse in schools is a national challenge that all the stakeholders need to work hand-in-glove in order to eradicate this epidemic. The South African Schools Act (No 84 of 1996) declares all schools as a drug free zone. This implies that school premises should be freed from drugs and substance abuse. Illegal drugs should be prohibited within school premises and there should be no one entering the school premises or found in school under influence of illegal drugs or alcohol. The findings have indicated that half of the schools at iLembe district do have effective drug abuse control measures in their schools, but this is not enough, since an outstanding half have indicated that they are challenged on drug abuse and substance abuse in their schools. Daniels (2007:14) sustains that the abuse of drug, together with vandalism of school infrastructure as well as school violence are closely related and go hand in hand.

The findings reflected the challenge in schools about workplaces that are not protected from rodents and insects. Rodents are known as carriers of different diseases and proved to be a health hazard to humans. Section 24 of the Constitution of the Republic of South Africa of 1996 entrenches the right of all citizens to live in a setting that is not detrimental to their well-being or health.

Transmission of sickness from bug pervasions can happen in both the inward and outside environment of premises through tainting of gear, surfaces, nourishment or water.

Implementing control measures on a regular basis is necessary to prevent or eradicate infestation and should be effected by means of a continuous vector control programme, Matsoso (2015). This situation demands an urgent intervention by the department officials.

Most schools in iLembe district are without special storage places for hazardous materials. According to the article by the University of Texas at Dallas, chemicals in any form can be safely stored, handled, or used if the physical, chemical, and hazardous properties are fully understood and the necessary precautions, including the use of proper safeguards and personal protective equipment, are observed. The guide further emphasises that the most effective way to isolate flammable and corrosive hazards is to store them properly in approved safety storage cabinets. Chemical safety storage cabinets isolate corrosives and flammable liquids from other incompatible chemicals, provide a higher level of security against theft and vandalism, and will contain and control the hazards should an event occur (Chemical and Hazardous... 2012).

The findings also reveal that most schools do have fire extinguishers. The only precaution to be undertaken is about their condition as well as how often are they serviced. The National Norms and Standard for School Infrastructure notice (2009) states that school structures will have a fire rating which adjusts to directions as per the National Building Regulations. Fire quenchers will be given at a proportion of no less than one for each 150m<sup>2</sup>. This proportion will be expanded to one each 50m<sup>2</sup> in labs and comparative territories. The arrangement of flame dousters will adjust to national and additionally universal controls on the arrangement, support and substitution of such.

Almost all the participants have indicated that their schools do not have complete access to all areas for people living with disabilities. According to South African Human Rights Commission (SAHRC) (2002), people living with disabilities are denied their equality rights, self-esteem and freedom by environments that are inaccessible. The factor that denote exclusion of persons living with disabilities from the societies, is the fact that built environments are without physical access.

The organisation dealing with children living with disabilities and promote their education's right highlights the fact that Comprehensive Education implies that standard schools effectively welcome youngsters with handicaps or exceptional needs, and have the preparation and assets that permit them to give the bolster required by various learners. Further, Inclusive Education stresses the significance of kids with handicaps having a similar chance to learn and develop to their maximum capacity as some other kid. It abstains from isolating youngsters, and rather effectively works at empowering kids to take in with and from each other. Comprehensive Education is diverse to "mainstreaming" in that it obliges schools to receive an alternate way to deal with meeting the uncommon needs of a few learners, as opposed to kids fitting into the school as though they have no inability by any stretch of the imagination

The number of factors that have been discussed under 6.2.1 section are the indication of an accomplished objective.

### **6.2.2 Objective 2: Analysing the effects of infrastructure management.**

For effective management purposes a school principal needs to know the life cycle of his/her school infrastructure. The findings reveal that there were a few principals who do not know their school's estimation age. Knowing the age of school infrastructure enables the principal to take precautions towards the repairs and renovation of the school, before the structure poses hazardous life risks to the school personnel and learners. The Facility Maintenance Guidelines for Schools (2012), explains that School Governing Bodies and principals are in charge of school operation under 'segment 20', and most are in charge of school support under 'area 21'.

The sections are referring to the powers given to the schools that are doing? By provincial government to run their operations towards school improvement. The Facility Maintenance Guidelines for Schools (2012), further guides that to invert the long haul disregard of a school's property, structures and grounds, it is prescribed that School representing bodies and School principals ought to ring wall 10% of the standards and models portion to cover offices repairs and upkeep

Therefore it is important for the principals of schools to understand the life-cycle of his/her school infrastructure, for effective management purposes.

The school infrastructure features exposed by the findings which reflected the situation of being in poor and very-poor state were: roofs; plumbing; windows; doors; electrical power; framing and foundation; interior finishes; as well as furniture and equipment.

Noticed from findings again was the schools without plumbing, which signals that in those schools they are using pit-hole toilets and access water from tanks. According to Veriava (2012) the department of basic education according to the latest educational management for infrastructure 24793 public schools that are ordinary appears on its data base. Furthermore:

“the latest national education infrastructure management study released by the department of basic education in 2011, there are 24 793 ordinary public schools. It showed that:

- statistics shows that 3544 schools are without electricity supply and there are 804 with defective supply of electricity;
- schools without water supply are 2402 and with poor supply are 2611;
- those without ablution facilities are 913, while 11450 rely on using pit-latrines toilets;
- schools without fencing are 2703;
- schools without libraries are at 79% while 7% are using stocked libraries;
- those that are without laboratories are at 85% while 5% is using stocked laboratories;
- 10% have stocked computer centres; and 77% are without any computer centres;
- 17% of schools lack any sporting facilities.

The efforts by the department of education to remedy the above situation should be doubled and more funding is needed.

There were a number of schools without intercom, air-conditioning and fans. Intercom enables the management of a school to relay information and messages either to the staff or learners on time, in a quick and effective way. It enhances effective management styles especially in time management. Air-conditioning and fans enhance the rights for learners to health and safety conditions under unfavourable conditions.

The absence of the above features affects the proper infrastructure management in schools. Due to the fact that most schools are located in tribal authority areas, they are prone to be the last priority to the department of education officials.

Country territories are portrayed by different elements that adversely impact the conveyance of value training. Normally country zones are remote and generally immature. Therefore, numerous country groups and their schools are poor and hindered, lacking fundamental foundation for sanitation, water, streets and other transport, power, data and correspondence technology, du Plessis (2014).

It is evident through the findings that there is insufficient support by the department of education officials to schools concerning infrastructure management. This impacts negatively, more especially on the core business of the school, as well as on expectations for the school infrastructure management.

The aspects that have been shared in discussion under section 6.2.2 are an indication of an objective that was successfully achieved.

### **6.2.3 Objective 3: Assessment for learning environmental state based on present Secondary schools' infrastructure at iLembe District**

Absence of ventilation in schools was echoed by the findings posing a serious hazard on the well-being of both learners and educators. According to the Government Gazette no. 36837 of (2013) on infrastructure for public schools' norms and standards highlights that in order for the promotion of healthy living conditions and minimising the risk of disease spread, the ventilation should be natural with permanent windows and wall vents with opening sections. The rights to health and safety for learners are violated.

Most schools according to the findings are not fenced. Where there was fencing it was either in poor or very-poor condition. The fence helps in decreasing chances of vandalism by intruders. It further promotes and improves safety of learners and educators. The availability of a fence improves the management of learners' movement in schools.

The findings revealed that most schools have poor toilets conditions for learners and educators. This situation has a negative impact in many aspects: it can escalate the rate of absenteeism in the sense that if a learner or an educator is suffering from a running stomach, it's difficult to attend school due to poor conditions of toilets.

Poor state of toilets can also spread diseases among learners due to unfavourable conditions of the toilets; and female learners feel unsecured during their menstrual cycle with poor toilets in their schools. The whole situation is humiliating to human dignity and violating humans' rights to a clean and safe school environment.

The electrical power is a challenge in most schools according to the findings. Electrical power in schools is a global challenge. According to the Department of Economic and Social Affairs (2014) the absence of power at schools is appalling, a result of the different administrations it can give in the classroom. In fact, electricity provides a number services that improve the functioning and outcomes of the school. This is one of the challenges that the department of education need to work tirelessly on in order to come to the rescue of poor learners and educators who are disadvantaged by the absence of electricity in their schools.

Learning environment of most schools had challenges according to the findings:

- Chalkboards need attention since the findings reflect that they are in poor state in most schools. Chalkboards are an important teaching aid that cannot be ignored as it plays a pivotal role, especially in schools located in disadvantaged areas.
- Insufficient learning space was one of the findings affecting learning environment which impacts negatively on a learners' psychological register.
- Absence of or too small staff-rooms is disadvantageous to educators in performing their duties.
- Schools without play-grounds or which had playgrounds but in poor conditions.

According to Ayeni (2012), learning is an association amongst reaction and boosts. They additionally insinuate great environment as it fortifies the endeavours of the instructor by giving a decent jolt to viable educating and figuring out how to happen.

Furthermore, a decent school environment where great working offices exist, is an impetus for successful educating and learning. In a school where there is sufficient space for the educators to stroll around in the classroom while conveying a lesson will advance riveted consideration of understudies and great scholarly execution (Ayeni 2012).

The above conditions guide this research to deduce that the state of learning environment at iLembe district schools need attention in order to be conducive to effective teaching and learning initiatives.

#### **6.2.4 Objective 4: Evaluating the extent to which schools are supported towards infrastructure planning and facility management.**

Asiabaka (2008) maintains that school offices administration assume a crucial part in the completion of instructive objectives and destinations by fulfilling the physical and enthusiastic needs of the staff and understudies". As indicated by Uko (2015), "with a specific end goal to satisfy instructive targets, instructive offices are required and ought to be integral to the degree that educators, understudies and other work force will make the most of their stay and play out their obligations viably, made conceivable by the foremost's administration creativity and capability

Without proper support by both provincial and district management to the school principals and school management teams, the school functionality will be challenged. The findings show that it takes more than 1 year for the department of education to respond on issues of infrastructure and facility management, more especially on repairs and renovations. This implies that educators and learners are compelled to survive under those unfavourable conditions for more than a year. These are indications that there is insufficient support for the principals of schools by the department of education officials.

### **6.3 IMPLICATIONS OF THE RESEARCH**

The research findings are alerting the department of education system and it calls for the review of operations, especially on infrastructure and facilities management category.

Health and Safety standards for educators, learners and school personnel are compromised. The rights to health and safety act and policy are violated at the expense of the workforce and learners.

Everybody, including the educators and learners, have the privilege to have his/her nobility regarded and secured, (Masitsa (2011).

Weakness at school may undermine the instructor's and learners' entitlement to have his/her pride regarded and secured. This may make a negative effect on instructors concerning their loco parentis status or to their right side to keep up specialist and to practice minding supervision of the learner, (Masitsa 2011).

In view of the findings, infrastructure management is affected by inadequate support and resources. Worsening the situation is the lack of proper training and guidance on infrastructure management for the school principals. According to Lahon (2015) a school can't survive without infrastructure. A good school infrastructure includes good condition building with sufficient amount of classrooms that are well-organized, chairs, adequate blackboards, benches, tables, desks, a satisfactory number of sanitation offices, access to satisfactory clean drinking water, power, ventilation and light, fire ways out and emergency treatment unit, restorative help, flask, adequate entertainment ground, library, laboratory, and computer facilities, Lahon (2015). The outcomes of the findings reveal that iLembe district schools' infrastructures are negatively affected due to poor infrastructure management.

The state of learning environment is compromised by poor health and safety standards as well as inconsistency and poor infrastructure management. Another possibility leading to the situation might be insufficient funds that are available for the department of education to deal with challenges. In order to achieve the goals of secondary education, the environment has to be conducive for learning. In fact, education thrives well only if there is a good learning environment to assist learners to get the necessary information at each stage of learning. The environment constitutes an important aspect of the learning process; it creates the needed conditions for effectiveness of teaching and learning (Iwaugwu, Don and Ojemhenkele, 2016).

The impact of learning environment cannot be under-estimated for effective teaching and learning in schools.

Findings indicate that there is a missing link about the extent to which schools are supported towards infrastructure planning and facility management.

This might be due to insufficient staff available to provide relevant services to the schools at iLembe district, or any other reasons. Irrespective of the reasons, the fact remains that infrastructure planning and facility management is poorly administered at iLembe district schools.

Quality affirmation as the precise administration, checking and assessment method ought to be embraced to guarantee that the learning environment and the educational programs program of an instructive establishment meet the predetermined gauges to accomplish the set objectives, and create yields that will fulfil the desires of the organization's general public, (Ayeni 2012).

The lack of quality assurance in schools can be attributed to the challenges affecting infrastructure planning and facility management.

### **6.3.1 Application of Results in Practice**

There are a number of factors affecting the application of research results in practice:

- The structure and culture of the research organisation. The structure that is responsible for authorising, tasking and dissemination of research to relevant implementers, remain the barrier for effective application of research results in practice.
- Vision and insight of implementers. The priority consideration of the implementers has an effect on the practical application of results.
- Availability of funds. The budgetary constraints in most organisations are the challenges towards the implementation process.

- Political barriers. Political mandates to the officials and obstacles set to prevent political image play a significant role towards successful implementation.
- Availability of personnel in the implementation hierarchy. The problem that most organisations have is that of being understaffed. This results to poor service delivery.
- Poor monitoring of the implementation plan. Most organisations have good implementation plans on paper, without proper monitoring and support for the plan.

### **6.3.2 How stakeholders will benefit from the findings?**

The study has indicated a number of areas that demand special attention. It is important for any organisation to protect and build its image. If the challenges are not attended to, they will tarnish the image of the education system.

The findings alerted the system on the following grey areas: unsatisfactory health and safety conditions under which educators and learners are exposed; lack of support for infrastructure management; detrimental learning atmosphere that is not favourable to the learning and situation; as well as poor turnaround strategy on issues of attending to repairs and renovations in schools. The outlined factors and interpretations thereafter will assist all the stakeholders to elicit relevant category factors that talks to their operations in order to effect changes and action recommendations.

## **6.4 RECOMMENDATIONS**

Applicable literature reviews as well as the research findings resulted in the following study recommendations.

The findings reveal unsatisfactory health and safety ethics in schools at ILembe district. Therefore:

- The department of education is recommended to engage on a persuasive integrated approach, in which all stakeholders involved will receive thorough training on issues of health and safety in schools.

- If all the stakeholders are hands-on, challenges of unavailable funds to remedy the situation could be partly resolved.
- It is further recommended that the department need to strengthen monitoring and support in schools. Monitoring and support must ensure the implementation of the health and safety act and policy.
- Challenges brought about by the absence of resources, as well as insufficient personal, should be prioritised by the department of education.

The findings exposed limited knowledge of the principals about the life cycle of their schools infrastructure. This results in poor infrastructure management, hence the state of schools' infrastructure being in shambles.

- The department of education is recommended that there is a need to review the appointment of skilled personnel on infrastructure management. This will assist the principals and governing bodies to receive correct and informed guidance. This will also revive the concern of future maintenance of current schools' infrastructure, and further limit non-response to maintenance matters.
- Based on the findings, a thorough training programme targeting the principals and governing bodies on infrastructure management, is recommended. The findings further reveal limited school support by the department officials on matters of infrastructure management.
- There is an urgent need to review the budget in order to support the initiative of more service delivery by employing more skilled staff personnel to support principals on infrastructure management.

Learning environment seems not to be a priority for the department of education, according to the findings. A conducive learning environment in schools is a non-negotiable factor.

- Therefore the recommendation is that the department needs to reinforce the implementation of policies and functional government structures that are enabling factors.
- More focus should be directed towards improving the conditions of learning environment in the schools at iLembe district.

The location of the school, school physical conditions, school social environment, positive learning environment and proper management are features of learning environment that need to be prioritised by a monitoring and support team.

According to research findings, Infrastructure planning and facilities management lack direction as there is inadequate support of principals on these aspects. According to Asiabaka (2008) offices administration is a vital part of the general administration of the school. School administrators ought to complete far reaching evaluation of the offices to decide zones of need.

- For them to accurately determine the areas of need, they require a skill obtainable from the training on such activities. Therefore skill-based training is recommended to the principals of schools affected.
- A district-monitored comprehensive facility maintenance program is recommended. Such programme will enhance proper planning and management of facilities.

The researcher concurs with Xaba (2012) on emphasising a requirement for school offices upkeep to be put at the centre of school projects. Since schools aggregate school advancement arranges, offices upkeep ought to be viewed as one of the major key levers in the improvement arranging forms.

## **6.5 RECOMMENDATION FOR FUTURE STUDIES**

The study was focusing on schools more especially located in disadvantaged areas. Areas that have been overlooked by policy implementers and supporting management teams were exposed by the study and implications were discussed. Therefore it may be necessary to:

- Examine the functionality of the district and provincial officials in monitoring and supporting the implementation of programs and policies at school levels.
- Investigate the stumbling blocks towards supporting schools on matters of infrastructure and facilities management.

## **6.6 CONCLUSION**

This chapter has analytically discussed the study objectives in terms of whether they were accomplished or not. It further deliberated on the implication of the study in which the department of education system has been alerted on challenging matters in schools concerning infrastructure planning and facilities management. There is a requirement for an entire school way to deal with offices support which, as per the International Facility Management Association (2009:5), which is a procedure by which an office administration association imagines its future by connecting its motivation to the technique of the general organization and after that creating objectives, targets and activity arrangements to accomplish that future.

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Dear Respondent,

**MBA Research Project**

**Researcher:** Nonhlanhla Cele (082 759 5037)

Email Address: [bhelezacele@gmail.com](mailto:bhelezacele@gmail.com)

**Supervisor:** Dr. Thokozani Nzimakwe (031 260 2606)

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**Research Office:** Ms Mariette Snyman (031 260 8350)

Email Address: [Snymanm@ukzn.ac.za](mailto:Snymanm@ukzn.ac.za)

I, Nonhlanhla Cele (Student Number: 211550442), an MBA student at the Graduate School of Business and Leadership, of the University of KwaZulu-Natal, kindly invite you to participate in a research project entitled:

**THE IMPACT OF EFFECTIVE SCHOOLS' INFRASTRUCTURE AND FACILITIES  
MANAGEMENT ON LEARNERS AND EDUCATORS**

The study aims to achieve the following objectives:

- Evaluate health and safety standards in secondary schools at ILembe District.
- Analyse the effects of infrastructure management.
- Assess the state of learning environment based on present infrastructure in Secondary schools at ILembe District
- Evaluate the extent to which schools are supported towards infrastructure planning and facility management.

This research will aim at investigating and unpacking the reasons behind challenges of ILembe District Government Senior Secondary schools deteriorating conditions, out-of-date infrastructure design, capacity utilization pressures and management of facilities. These combined deficiencies impair the quality of teaching and learning and also create health and safety problems for staff and learners. The effects of deteriorating condition and poor maintenance of schools infrastructure and facilities are a threats to school management, curriculum delivery and learners academic performance. The abysmal performance of learners in examinations had been largely attributed to inadequate learning facilities. This situation has been a source of concern to the school administrators, government and other stakeholders.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequences. There would be no monetary gain emanating from participating in this research. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Graduate School of Business and Leadership, University of KwaZulu-Natal.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me or my supervisor, the details of which are listed above.

The survey should take about 10 – 15 minutes to complete. I hope you will take some of your precious time to complete.

Sincerely

Student/Researcher Signature: ..... Date: .....

***These 3 pages are to be retained by the participant.***



UNIVERSITY OF  
**KWAZULU-NATAL**  
 INYUVESI  
**YAKWAZULU-NATALI**

**Graduate School of Business**

Dear Respondent,

**MBA Research Project**

**Researcher:** Nonhlanhla Cele ( 0827595037)

Email Address: [bhelezacele@gmail.com](mailto:bhelezacele@gmail.com)

**Supervisor:** Dr. Thokozani Nzimakwe (031 260 2606)

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**Research Office:** Ms Mariette Snyman (0027 31 260 8350)

Email Address: [Snymanm@ukzn.ac.za](mailto:Snymanm@ukzn.ac.za)

Research Project Title:

**THE IMPACT OF EFFECTIVE SCHOOLS’ INFRASTRUCTURE AND FACILITIES  
 MANAGEMENT ON LEARNERS AND EDUCATORS**

**CONSENT**

I .....(Full names of participant)

Working for .....(Full company name)

Hereby confirm that I fully understand the contents of this document and the nature of the research project and I consent fully to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

SIGNATURE OF PARTICIPANT: .....

DATE : .....

*This page is not to be retained by the participant.*

# THE IMPACT OF EFFECTIVE SCHOOLS INFRASTRUCTURE AND FACILITIES MANAGEMENT ON LEARNERS AND EDUCATORS

## SURVEY QUESTIONNAIRE

Directions: The following are statements about your school. Please indicate the extent to which each statement characterizes your school infrastructure and facility by marking the appropriate response.

School code: (*District and area*)

1. What is the age of the school facility?

2. Is the school situated in the Municipal area or Tribal Authority area

3. Are there mobile classrooms in your school?

**A. Indicate your opinion by ticking the relevant box in the following:**

	Yes	No
1. Do the school have a fully functional health and safety committee?	<input type="checkbox"/>	<input type="checkbox"/>
2. Is there enough of an effort towards prevention of safety challenges?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are the relevant resources available, both human (counsellors) and Physical (first-aid kits), to cope with safety challenges?	<input type="checkbox"/>	<input type="checkbox"/>
4. Are there any anti-bullying programs in place in the school?	<input type="checkbox"/>	<input type="checkbox"/>
5. Do you have a fully equipped and functional sick room at the school?	<input type="checkbox"/>	<input type="checkbox"/>
6. Do you have effective Drug abuse control measures in your school?	<input type="checkbox"/>	<input type="checkbox"/>
7. Is the workplace protected from rodents and insects?	<input type="checkbox"/>	<input type="checkbox"/>
8. Do you have a special storage place for hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>
9. Are there any fire extinguishers in the school?	<input type="checkbox"/>	<input type="checkbox"/>
10. Do people with disability have complete access to all areas?	<input type="checkbox"/>	<input type="checkbox"/>

**B. Tick a relevant box that best suits the situation in your school:**

1. How safe do you find your workplace?

Very safe  Safe  Neutral  Unsafe  Very Unsafe

2. How safe are both learners and educators from crime perpetrators within the community in which the school is situated?

Very safe  Safe  Neutral  Unsafe  Very Unsafe

3. What is the level of safety for female learners from sexual harassment by culprits within the school?

Very safe  Safe  Neutral  Unsafe  Very Unsafe

4. Indicate the level of security within the premises of the school

Very safe  Safe  Neutral  Unsafe  Very Unsafe

5. Parking of the staff cars

Very safe  Safe  Neutral  Unsafe  Very Unsafe

6. Safety measures of crime prevention e.g alarm system, burglar guards, etc.

Very safe  Safe  Neutral  Unsafe  Very Unsafe

7. Is the school furniture and equipment for learners safe for usage

Very safe  Safe  Neutral  Unsafe  Very Unsafe

8. Safety of the physical building condition of the school

Very safe  Safe  Neutral  Unsafe  Very Unsafe

**C. Indicate your opinion by ticking a relevant box**

The overall infrastructure provided by the department of education

- |                       |                                 |                               |                               |                                 |                                    |
|-----------------------|---------------------------------|-------------------------------|-------------------------------|---------------------------------|------------------------------------|
| 1. Ventilation        | V/poor <input type="checkbox"/> | Poor <input type="checkbox"/> | Good <input type="checkbox"/> | V/Good <input type="checkbox"/> | Not there <input type="checkbox"/> |
| 2. Security fencing   | V/poor <input type="checkbox"/> | Poor <input type="checkbox"/> | Good <input type="checkbox"/> | V/Good <input type="checkbox"/> | Not there <input type="checkbox"/> |
| 3. Learners toilets   | V/poor <input type="checkbox"/> | Poor <input type="checkbox"/> | Good <input type="checkbox"/> | V/Good <input type="checkbox"/> | Not there <input type="checkbox"/> |
| 4. Educators' toilets | V/poor <input type="checkbox"/> | Poor <input type="checkbox"/> | Good <input type="checkbox"/> | V/Good <input type="checkbox"/> | Not there <input type="checkbox"/> |
| 5. Lighting and fans  | V/poor <input type="checkbox"/> | Poor <input type="checkbox"/> | Good <input type="checkbox"/> | V/Good <input type="checkbox"/> | Not there <input type="checkbox"/> |
| 6. Chalkboards        | V/poor <input type="checkbox"/> | Poor <input type="checkbox"/> | Good <input type="checkbox"/> | V/Good <input type="checkbox"/> | Not there <input type="checkbox"/> |
| 7. Learning space     | V/poor <input type="checkbox"/> | Poor <input type="checkbox"/> | Good <input type="checkbox"/> | V/Good <input type="checkbox"/> | Not there <input type="checkbox"/> |
| 8. Staffroom/s        | V/poor <input type="checkbox"/> | Poor <input type="checkbox"/> | Good <input type="checkbox"/> | V/Good <input type="checkbox"/> | Not there <input type="checkbox"/> |
| 9. Playgrounds        | V/poor <input type="checkbox"/> | Poor <input type="checkbox"/> | Good <input type="checkbox"/> | V/Good <input type="checkbox"/> | Not there <input type="checkbox"/> |

**D. On the overall what is the physical condition of each of the building features listed below. Tick a relevant box.**

Building features	V/Good	Good	Fair	Poor	V/Poor	Not Available
1. Roofs						
2. Plumbing						
3. Windows						
4. Doors						
5. Electrical power						
6. Framing and foundation						
7. Intercom						
8. Interior finishes						
9. Air-conditioning or Fans						
10. Furniture and Equipment						

**E. Estimate the period taken by department officials to give support after reporting on issues of facility repairs.**

1. Less than one week
2. One to two months
3. Three to four months
4. More than five months
5. One year or more

**F. How long does it takes for the department to attend to urgent renovations and repairs after official lodgement?**

1. One to three months
2. Four to six months
3. Seven to twelve months
4. More than one year

