Architecture and Childhood Development: Towards establishing architectural design guidelines for children's environments in South Africa.

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As the candidate's supervisor I have/have not approved this thesis/dissertation for submission.
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DECLARATION

Submitted in fulfilment / partial fulfilment of the requirements for the degree of Master
of Architecture by Research, in the Post Graduate Programme in Architecture,
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Durban, South Africa.

I declare that this dissertation is my own unaided work. All citations, references and
borrowed ideas have been duly acknowledged. It is being submitted for the degree of
Masters in Architecture by Research in the College of Humanities, School of the Built
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Durban, South Africa.
None of the present work has been submitted previously for any degree or examination
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ACKNOWLEDGEMENTS

DEDICATION

to Gustav, Mia, Kayla and Thomas

ABSTRACT

The research in terms of **Architecture** and **Childhood Development** is based on an understanding that Architecture serves society and has the potential to impact positively on children. The research is grounded in a postmodern theoretical enquiry, and the primary **purpose of architecture** is established as the **process of creating places for people to dwell**.

The concern with childhood development and more specifically Early Childhood Development relates to the universally recognised potential of changing society through early intervention and provision of quality childhood development. The research relates to the principles of The UN Convention of The Rights of The Child, and aims to initiate the transformation of the architectural design of spaces for children, to achieve a positive impact on childhood development for children in South Africa.

The research problem is defined in terms of the concept of the built environment and how it impacts on childhood development, seldom considered in the provision of **Early Childhood Development** in South Africa. The key question is: How can architectural design provide nurturing and stimulating environments that influence the care, education and development of children between the ages of 0-6 in the province of Kwa-Zulu Natal, **South Africa**?

The research methodology includes a literature review, policy analysis and collective case study. The literature review examines the theoretical framework of phenomenology and perceptual theory, as well as concepts of placemaking, dwelling, child development theories, and educational studies relating to children's spaces. The key concepts of **Responsiveness**, the **Third Teacher** and **Community** are established. The methodology of *The Pattern Language* and design guidelines from the UK and Australia are investigated to assist the understanding of these concepts translated into architecture.

The policy analysis reviews the Rights of The Child, as well as ECD implementation both universally and in South Africa. The case study highlights the methods of translating the theoretical concepts of Responsiveness, Third Teacher and Community within the Kwa-Zulu Natal context as implemented by architects. The research concludes with a **framework** for the **design guideline** for **children's environments** in South Africa.

PREFACE

The study of relating architecture to childhood development stems from my journey in Architecture. The topic of my Bachelor of Architecture dissertation looked at the design of a mental health facility in an attempt to use architecture as part of the healing process and destigmatisation of mental illness. The theoretical framework was based on Foucault and Architectural Psychology. The notion of Architecture as being purposeful and defined by its user was strengthened during my time in the UK working for educational consultants who advised architects on the design of educational buildings.

At ELE (Effective Learning Environments) my role was to assist with the Early Childhood Programme which often involved facilitating the process between client, user and architect. I was also involved in the process of editing new UK design guidelines for early childhood centres. This work provided me with the opportunity of visiting several ECD centres and preschools with insightful commentary from the experienced directors, namely Robin Bishop and Helen Nichols. Both were professional architects with extensive experience in the design of learning facilities, being previously involved at the Department of Education's Building Branch.

My experience in the design of educational buildings was furthered at Ellis Williams Architects, a design-orientated practice with an extensive School Projects portfolio. In this role I was able to apply my knowledge of learning environments directly in the design of a proposed new primary school.

In my personal capacity I am also the mother of four children between the ages of 7 and 14, which may seem irrelevant to some, but I do believe that my constant interaction with my own children and their learning experiences provides me with a better understanding of the importance of providing quality environments for children. This research project was first initiated whilst I was pregnant with my last-born who entered Grade 1 this year.

Over the past 14 years I have been in direct contact with 10 different facilities concerned with the care and education of children between the ages of 0-6. As an architect my view of educational spaces is that their effectiveness lies not only in the quality of the education they offer but also in an environment that supports it. Even in the relatively privileged environments where my own children were placed, there is a clear lack of understanding of the impact of architecture on childhood development. The literature review presented as part of this research report has confirmed many of my own observations and concerns in terms of Early Childhood Development in South Africa. In completing this research I hope to make a real difference in the design of environments for children.

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CHAPTER 1

INTRODUCTION TO THE RESEARCH

1.1 INTRODUCTION

In 2008 Rodney Harber and I accompanied the B.Tech Architectural Technology students from Durban University of Technology to a primary school situated on the periphery of Pietermaritzburg. We had arranged the visit through Derek Pienaar from IPEB, an NGO that was working towards improvement of ECD and Grade R provision in the KZN province. This visit formed part of a student design project where the students were required to propose a design to redevelop the school to include new Gr R class-rooms and an ECD centre.

The visit to this school provided me with a glimpse of the stark reality of the complete lack of quality in terms of the architectural design of spaces for children in South Africa.

The site consisted of rows of prefabricated classroom units reminiscent of Rainbow Chicken Farms buildings, situated along the N3 en route from Durban. The existing ECD classrooms were positioned in dilapidated tin-roofed buildings with wattle and daube walls. In some areas the roof was open to the sky and the walls were crumbling. The ablution facilities for the whole school were found easily as the unbearable odour was unmistakable. The provision consisted of a number of free standing corrugated sheet-metal pit toilets. The site was provided with water from a water truck delivering water once a day.

To fathom how children could be provided with quality childhood development and education under these conditions is almost inconceivable. This type of environment provides no dignity to the children or teachers. It is potentially detrimental - not only to their health but to their self-worth, and their ability to become educated, responsible adults, capable of contributing to the healthy development of our country.

The research report that follows intends to address the underlying issues that need to be facilitated from an architectural perspective.

1.1.1   Background

The Role of Architecture in society

> "The point is whatever you do, wherever and however you organise space, it will inevitably have some degree of influence on the situation of people. Architecture indeed, everything that is built, cannot help playing some kind of role in the lives of people who use it, and it is the architect's main task, whether he likes it or not, to see to it that everything he makes is adequate for all those situations."(Hertzberger 1991: 174)

A humanistic view of architecture, as argued by Hertzberger (1991), acknowledges the role of architecture in shaping the environments of people. Rasmussen (1959) similarly states that when architecture is shaped by people, it can allow architecture to achieve the potential to shape society. Day (2007) argues that architecture impacts on how people think feel and behave. These arguments can be extended to specifically include the potential of the architecturally-shaped environment to contribute to the healthy development of children.

The importance of Child Development

The development of children occurs through the interaction of genetics and social experience. The National Scientific Council and Center for the Developing Child at Harvard University (2007) explains that Childhood Development forms the foundation for community development and economic development and can provide for the development of a prosperous and sustainable society. According to Day (2007), Herzberger (2008) and Dudek (1996) amongst others, the physical environment forms an important aspect of how a child develops which suggests that architecture should be recognised as an important resource in the development of a better society.

The relationship between Architecture and Childhood Development

The relationship between Architecture and Childhood Development has been acknowledged in various ways by psychologists, architects, urban designers, planners, geographers, anthropologists and educational practitioners over the past century. This relationship has been explored in terms of research to establish the different ways that children respond to their environment and what quality of spaces are required to support the care, education and development of children. (Nair, et al: 2009)

The understanding that architecture is a powerful resource for shaping society provides a basis for this research.

The built environment forms a background to the daily experiences of the people within it. People are aware of their environment through their senses. This awareness can provide a specific feeling or emotional reaction to a place. The quality of the built

environment can provide the possibility of being at ease, being inspired and creating a sense of belonging through the medium of architectural design.

People all experience their environment through their senses, but the intensity of sensory experience and the impact is at a peak during the early and middle childhood periods. (Day: 2009) (Bukatko&Daehler: 1995) Children perceive their world with a multitude of possibilities to engage physically, affording the opportunity to support development of the whole child.

If childhood is defined as a crucial development period towards becoming an adult, the quality of the built environment in which this development takes place requires careful consideration and should provide a platform for learning beyond formal instruction. (Day: 2009; Newman: 1977: Hertzberger: 2008) Spaces for children need to be nurturing and accommodating of physical, psychological and gender differences; providing for different forms of intelligence and learning styles.(Dudek: 1995; 2005)

Built environments that could impact on childhood development, range between formal development and informal development settings. (Alexander: 1977; Hertzberger: 2008) The former relate to schools and crèches while the latter refer to homes, children's homes, streets, parks, aftercare-facilities, clinics, children's hospitals, public libraries, museums, places of worship and other public gathering spaces. (Hertzberger: 2008)

Dudek (2005) argues that throughout the history of school design there is limited evidence of a critical approach to the design of educational spaces. Hertzberger (2008) concurs by stating that these places are designed or conceptualised without in-depth consideration of childhood development. Although the past two decades have seen a rise in exploration of how school and early childhood development centres can become more child-centred and allow for play and creativity, this seems to be limited to the developed world. The reasons for the a lack of exploration beyond the developing world is largely due to the constraints imposed by a lack of resources and basic infrastructure, but this is further exacerbated by the devalued role of architecture and its potential to impact positively on society

United Nations Convention of the Rights of the Child.
Since the 1989 United Nations Convention of the Rights of the Child, a universal process has been initiated to reconsider the way society understands childhood. This process has entailed the construction of a comprehensive framework, in order to better understand and support children in their development.

Some of the areas which have attracted international concern are: the way in which cities are developed, the devastating impact of poverty and the need for education. Research supported by task teams and affiliations of the UN, has resulted in Early

Childhood Development becoming a priority in the Global South; in Africa, and in South Africa.

Increased awareness of the need for ECD in South Africa

The importance of education and specifically of Early Childhood Education has been recognised by the South African Government since 1996. The approach of an integrated service provision for ECD, the inclusion of Gr R, and the planned formalising of a second pre-school year as part of compulsory schooling are commendable. This intended development has, however, been considered with minimal regard for the required environment to support it. The design of architecture for children in South Africa is generally developed with an economic and functional focus that provides very limited consideration for the specifics of the user group, and its potential to impact on childhood development. It would appear that the architectural profession is not being provided with the opportunity to engage with the stakeholders and decision makers, resulting in the kind of unforgiving environments described in the Introduction to this Chapter. This condition is underlined through government requirements that are limited to minimum requirements of a very pragmatic nature and the lack of architectural design guidelines for the design of ECD and GR R spaces. (Education White Paper 5: 2001)

Nelson Mandela stated "Education is the most powerful weapon which you can use to change the world." (Right of the Child Convention: 1989) Now 26 years later the 'world' of South African children is in dire need of change. This research aims to develop an argument that could highlight and incorporate the potential of architectural design for children as a tool to achieve the desired outcomes of early child development.

1.1.2.   Motivation/Justification of the study

The research will investigate broader issues of the impact of architecture on society. This relates to the on-going debate around the purpose of architecture. (Rapoport: 1982; Nesbit: 1996; Pallasmaa: 2005) The research is concerned with the process that is generally accepted in creating buildings. It is my view that there is a primary focus on functionality and economics rather than on the value and quality of the architectural design itself, specifically as this relates to the design of buildings and spaces that facilitate the care, education and development of children. The value of childhood development is generally appreciated but the implementation lacks a multi-disciplinary approach that includes architecture.

The development of children is a key determinant in the condition of any society. (The Science of Early Childhood Development: 2007) South Africa, as a developing country, could improve the current levels of poverty, crime and unemployment by driving the

positive development of children through the provision of quality spaces for them (Dudek: 1996; Dierx: 2002; Garcia: 2008) The development of Early Childhood care and education and the development of the formal education at Pre- Primary and Primary level in Africa have been on the agenda of the United Nations, UNESCO, UNICEF, The World Bank's Human Development Department and African Governments and Departments of Education, as evidenced by Conventions, Charters, Working Groups and Published Research. (Garcia et al: 2008) From the literature it is evident that the impact of the built environment is not yet considered an important aspect in assisting this process. (Bernard von Leer Foundation) This research aims to highlight the role that the built environment has in creating a positive impact on childhood development.

The research considers the position of the child within society as universal, as well as specific to the South African context, to develop an approach to the design of the built environment responsive to the needs of children in a developing country. This relates to the importance of childhood development in the development of society and especially within a developing nation in Africa. The impact of urbanisation and globalisation on children in urban environments as well as rural settings is another major concern. This research suggests that use of architectural design within both urban environments and rural settings can also impact positively on the issues around urbanisation and globalisation affecting childhood.

Figure 1 Qalakahle ECD centre, Mansel Road   **by Author (2016)**

1.2 DEFINITION OF THE PROBLEM, AIMS AND OBJECTIVES

1.2.1 Definition of the Problem

The concept of the built environment and how it impacts on childhood development is seldom considered in the provision of Early Childhood Development in South Africa.

1.2.2 Aims

Initiate the transformation of the architectural design of spaces for children to achieve a positive impact on childhood development for children in South Africa.

1.2.3 Objectives

a.   Develop an understanding of the relationship between childhood development and architecture with a focus on facilities that provide for early childhood development.

b.   Evaluation of the role of Architecture in Early Childhood Development in South Africa

c.   Provide examples of existing built environments intentionally designed to provide a positive impact on the care and education of children in South Africa in the KZN province.

d.   Develop a framework for Architectural Design Guidelines for children's spaces in South Africa.

1.3. SETTING OUT THE SCOPE

1.3.1 Delimitation of the Problem

The research is primarily contained within the field of architecture and will use peripheral fields, like educational pedagogy, psychology and social studies only to support and elucidate the argument. Although the research concerns itself with the built environment the focus will remain on architecture and its immediate context i.e. site as opposed to landscape architecture, town planning and urban design.

The research will be aligned with the current drive towards a triple, bottom-line sustainability that considers environmental, social and economic developments in architecture in terms of how this can be implemented in the context of childhood development in South Africa.

1.3.2   Definition of terms

Role of Architecture: Architecture serves to create places for people to dwell

Quality: with reference to architecture refers to the design and making of spaces that do not only meet the basic requirements of functionality and economic parameters but achieves in creating place.

Place: space plus 'something' (Rappaport: 1982)
                             Creating poetry

Built Environment: the environment which is constructed by man and includes   elements of nature, open space and buildings or structure.

Childhood Development: the growth of perceptual, emotional, intellectual, and behavioural capabilities and functioning during childhood. Childhood development is a universal term applicable to children of the developed world as well as the developing world

Early Childhood Development: the childhood development that occurs during the ages of 0-6, prior to entering formal schooling.

Concept of Childhood: The way children are perceived by adults who determine their specific position in a given society.

Design: The creative process required to develop a built environment in its context, or element within it.

Spaces for Children: The built environment or elements, including the outdoor spaces, which facilitate the activities of children.

1.3.3. Starting assumptions

The Built Environment and therefore architecture has an impact on people.

Childhood development is effected by contextual and cultural influences but there are universal aspects of human nature and how children develop that can be applied regardless of these contextual influences. This allows research and practice from

western cultures and developed countries, with different contextual influences, to be applied to the South African context.

The research recognises the difference in experience of the environment by adults and children. "children use the environment to improve themselves; adults use themselves to improve the environment. Children work for the sake of process; adults work to achieve results" (Day: 2007)

The key difference lies in the meaning of place: for children place affords opportunity, while for adults place is contained in a pre-defined purpose.

1.4   CONCEPTS AND THEORIES

The study will be rooted in the world view of meta-science, with a philosophical base of postmodernism and existentialism. For the purpose of this research postmodernism is understood as a very broad paradigm and mode of enquiry that supports several critical theories relating to architecture. Existentialism is understood as a philosophical enquiry by Heidegger (1954) developed into an architectural theory by Norberg-Schulz (1971), used to understand man's existence or his experience of being in the world. (Nesbit: 1996; Norberg-Schulz: 1971)

The theoretical paradigm used is that of phenomenology. Phenomenology relates to the role of architecture to establish a connection between a person and his environment. (Nesbit: 1996) Although this refers to theories that can be applied to architecture generally, it seems the most appropriate when dealing with the design of spaces for children in specific environments.

Place Theory refers to how a person finds attachment to a specific physical environment through both a physical and a psychological relatedness. Perceptual Theory refers to the way people perceive things or phenomena. The developmental theories proposed by Piaget (1950) and Vygotsky (1962) can be linked with both Place and Perceptual Theory as they provide an indication of how the environment may impact on a child's development at different stages. (Bukatko &Daehler: 1995) The discipline of Environmental Psychology is also rooted in Perceptual Theory and deals with how architecture impacts on people through their body and senses. Related to this is the study of environmental behaviour to explore the way in which children engage and perceive their environment differently from other children (Canter: 1974).

In architecture, several concepts have been developed through the application of these theories on the design of spaces for children, as explored by, Alexander (1977), Dierkx (2002), Chatterjee (2005), Hertzberger (2008) and Nair et al (2009).

1.5 KEY QUESTIONS, RESEARCH METHODS AND MATERIALS

1.5.1 Research Questions

Key Question: How can architectural design provide nurturing and stimulating environments that influence the care, education and development of children between the ages of 0-6 in the province of Kwa-Zulu Natal, South Africa?

Sub-Questions
a.   What quality of space is required for the care, education and development of children between the ages of 0-6 years?
b.   How do International and National decision makers consider the relationship between architecture and childhood development?
c.   What changes are required in the process and development of Early Childhood Development facilities?
d.   How does the environment impact positively on ECD where the architects set out to provide quality spaces for the care, education and development of children?

1.5.2 Research methods and materials

The intention of this research is to establish how the architectural design can provide nurturing and stimulating built environments that influence the care, education and development of children between the ages of birth to six years in South Africa.

The research was conducted using qualitative research methods, drawing primary data from four case studies and secondary data from conceptual analysis, literature review.

The methodology will, firstly, investigate the role of architecture and the concept of dwelling through a review of literature relating to place making and environmental behaviour, and to educational studies relating to spaces for children. Secondly: review of a range of relevant policies, and research documents from the UN, Government, Children's Institute and UNESCO to establish the position of Architecture in the Early Childhood Sector of South Africa. The purpose of this analysis was to establish how International and National decision makers consider the relationship between architecture and childhood development. Thirdly: four case studies in the KwaZulu-Natal province will be used to investigate the level of success obtained where architecture was designed to impact positively on the development of children. Each

case study site will be representative of a different Urban / Village setting for the architectural design and will be either ECD or Gr R. Research tools will include – Observation and analysis of architecture, Questionnaires and Interviews.

Literature Review

The aim of this stage of the research is to establish what qualities are required in spaces used for the care, education and development of children between the ages of 0-6 years, through a study of existing sources. As a starting point, the role of architecture and the concept of "dwelling" form the framework for positioning childhood development in the field of architecture. The concept of place making, of environmental behaviour and other educational studies are considered as these relate to designing spaces for children. The literature review explores research projects and papers providing insights into how children respond to their environment, as well as guidelines, a pattern language, and methods applied in the design of spaces for children. Aspects of urban design strategies to develop child friendly cities or neighbourhoods are also included in the review

Review of the UN established: Rights of the Child and relevant South-African policies.

The investigation then shifted to establish how children are considered universally, and particularly in South Africa. Various policies, strategies, and research from the UN, UNESCO, UNICEF, the South African Government and other research bodies that support the needs of children have been included. The aim of the review was firstly, to provide context for Childhood Development, and secondly, to establish the role of architecture within the context.

Case Studies

The focus of the case studies is to answer sub questions: How does the environment impact positively on ECD where architects set out to provide quality spaces for the care, education and development of children, as established in question (a) How do existing spaces for children, in urban areas, facilitate childhood development?

These questions were investigated using primary sources of information in the form of four case studies.

The collection of four case studies researches the architectural quality of existing spaces for the care and education of children between the ages of 0-6. These spaces have been identified and selected in the Kwazulu-Natal province. The different case study sites were selected on the basis of their architectural quality. This was established by special mention or an Award of Merit from the Kwa-Zulu Natal Institute of Architects or in terms of the wealth of experience and recognition attributed to the designing architect.

A further criterion was that the site served a low socio-economic status community. The only exception to the above criteria was the selection of Manor Gardens School. The inclusion of this school is based on the fact that the school serves a multicultural

community and that its grounds provide an unusual natural environment. The range of sites selected provides a good variety in terms of approaches and outcomes.

Case Study:
Site one: Qalakahle ECD centre, Mansel Road, Durban
Site two: LIV Village ECD centre, Vincent Dickenson Road, Cottonlands, Verulam
Site three: Manor Gardens Primary School Gr R
Site four: Ingane Yami School ECD & Gr R

The research tools used to conduct the case studies will be:
1. In order to capture form and quality of the built environment an architectural analysis of the design process as well as the built form, including drawings and photographic records will be conducted. This will include a review of the Project brief, design process, context, enrolment numbers, age groups, range of spaces as well as community engagement during the design process.
2. Critical observations to determine the quality of spaces for children as recommended by literature reviews. Observation of the interaction of children with the surrounding architecture forms an important part of this task.
3. Unstructured Interviews with users of facilities for children will inform the observation process. The sample will include Headmasters, Teachers, Parents, Remedial Teachers, Child Psychologists and Social Workers. Sample size will be established at 10% of the population in each case area.

The final part of the research constitutes interviews with two key informants representing experienced practitioners involved in the Development of Early Childhood Development:
- Caroline Robertson - Treetops Primary School
- Derek van Heerden - East Coast Architects

Other Key informants were contacted to obtain information but unfortunately due to a lack of response before completion of the research their input could not be taken into account.
- Department of Education KZN - Hugh Bulcock
- Children's Institute - Cape Town
- TREE - Durban
- Dept of Social Work KZN - Bongani Ngwane
- Department of Health KZN

1.6. ANALYSIS AND SYNTHESIS

The process of gathering information and the analysis of the Case Study material, together with the Key Informant Interviews, were conducted with a focus on the

concepts developed through theoretical framework and literature review. The analysis was conducted incrementally with a thematic approach relating to each site and the informants. This led to a synthesis of the combined information, towards establishing design strategies that could provide nurturing and stimulating environments for the care, education and development of children aged between 0-6 years.

The synthesis process involved combining the research presented in Chapter Three, dealing with the various policies related to Early Childhood Development, with the outcomes of the Case Study.

1.7. CONCLUSION

The objective of the research was to initiate a change in the design of environments for children, to allow a positive impact on their development through architectural design. During the process of conducting the research, the viability and possible content of Design Guidelines for the development of ECD spaces, were considered.   The conclusion of the research provides the framework only, for the Design Guidelines, as it is beyond the scope of this research to develop the completed document.

CHAPTER 2

LITERATURE REVIEW

Figure 2 Aldo van Eyck _ Orphanage
Source: http://www.geheugenvannederland.nl

2.1 INTRODUCTION

Considering the primary research question: how can architectural design provide nurturing and stimulating environments that influence the care, education and development of children between the ages of 0-6 in the province of Kwa-Zulu Natal, South Africa? The aim of this chapter is to provide a theoretical base and literature referential, in order to gain insight into what quality of space is required for the care, education and optimal development of children between the ages of 0-6 years?

Firstly, the **purpose of architecture** and the **concept of dwelling** through a review of literature relating to **place making**, **environmental behaviour** and **educational studies** relating to **spaces for children will be investigated.**

The aim of this stage is to establish what qualities of space are needed for the care, education and development of children between the ages of 0-6 years through a study of secondary sources. As a starting position the role of architecture and the concept of dwelling form the framework for positioning childhood development in the field of architecture. The concepts of place making, environmental behaviour and educational studies are considered in relating to spaces for children.

Figure 3 Aldo van Eyck, Dijkstraat Playground in Amsterdam before and after
source: http://www.thepolisblog.org

2.2 PLACES TO DWELL

The point of departure for the research is provided by understanding what the primary objective of architecture is. The primary objective of architecture is to serve society, it is purposeful behaviour. Throughout history in any given society the built environment was used not only to shelter one from the elements but to provide places for human habitat. In this instance habitat should be understood to gather all the aspects of life in one word. The study adopts a humanistic approach to architecture as considered in architectural theory relating to the post-modern paradigm. (Nesbit: 1996) The way in which the purpose of architecture is defined suggests how its relationship with childhood development ought to be conceptualised.

The dissertation argument is developed through a detailed study of phenomenology and perceptual theory as these relate to architecture, translated as "place and experience of architecture". The latter concept can also be referred to as "architecture and body". (Nesbit: 1996)

At the dawn of the postmodern paradigm Rasmussen (1959) argued that the design of architecture needs to be rooted in the user's experiences rather than merely as a functional or sculptural object. He describes architecture as "a visual, auditory, tactile, and above all psychological art" manifested in light, colour, rhythm, texture and material. (Mallgrave & Constandriopoulos: 2008) His view is aligned with more recent studies which consider the experience of architecture as a complete body experience which includes all the senses. (Menin: 2003; Palasmaa: 2005)

This argument follows through by incorporating the concept of "place" and of "dwelling" as presented in the seminal work of Christian Norberg-Schulz (1980, 1985) in his analysis of Heidegger's *Being and Time*. In defining the phenomenology of architecture the purpose of architecture is described as serving to develop a sense of place by allowing man to establish an existential foothold or sense of "being-in-the-world". He further relates how the developmental theories of Piaget are influenced by the quality of spaces and unique character of place. Similarly Max Robinson (Menin: 2003) also refers to Piaget in establishing Place as a "centre". In the study of both phenomenology and the literature dealing specifically with place and experience, the authors refer to childhood experience of the environment, thus signalling the importance of the link between architecture and childhood development, and suggesting that it is best supported by place and experience.

The thread of phenomenology and the perceptual experience of architecture are extended through the writings of Juhani Pallasmaa (2005) who argues for an architecture that considers all the senses. His view is that architecture has developed only to serve the visual sense and he continually provides support for a tactile architecture made visible through all the senses. The visually stimulating approach tends to disregard the commonplace act of building as included in the term" Architecture".

Within the discipline of Architecture the research of both Geoffrey Broadbent (1988) and David Canter (1974) into the field of environmental psychological provides architectural perspective that serves and considers people. The findings by Canter, on learning spaces, are based on a learning theory whereby the emotional experience of a child is central to the learning process.

2.2.1 The Role of Architecture

Defining the purpose of Architecture as the art and science of creating human habitat.

The impact of the modern paradigm on the human experience of architecture is a major concern when attempting a definition of Architecture. What needs to be considered in terms of this research is the way in which specific theories and concepts have developed in reaction to the failures of modernism. Although this aspect of the theory is broadly historical in nature it is relevant for the manner in which architecture for children is developed. The architectural theorist Kate Nesbit (1995) argues that "architectural theory is a catalyst for change within the discipline" (1995: 13) Her writing discusses five paradigms of post-modernism which impact on the discipline of Architecture; "phenomenology, emphasizing nature; place and tectonics… the body and its experience of architecture." (Nesbit 1995: 13) It is my argument that all of these paradigms are relevant to formulating a definition of architecture that would provide a nurturing and stimulating built environment for children.

It is beyond the scope of this document to investigate the failures of modernism in detail, but it is valid to recognise the major issues which have led the development of postmodern theories. We can identify two primary challenges: firstly, responsiveness to human needs and secondly responsiveness to context. Both of these issues should be seen in their broadest sense where human needs are inclusive of, physical, emotional, cognitive, spiritual, social and cultural aspects; and similarly where context is inclusive of geographical, climatic, cultural, political, social, and economic aspects.

The postmodern paradigm through its method of enquiry has allowed for a questioning of the status quo and fundamental structure of modern society including the architecture which supports it. The interdisciplinary approaches to philosophy evident in phenomenology (Heidegger), aesthetics (Vidler and Eisenman), linguistic theory (Derrida), Marxism (Foucault) and feminism (Diana Agrest) have individually and collectively, created a platform for the development of an architectural theory that addresses the challenges of responsiveness to human needs and to context in architecture. (Nesbit: 1995)

The themes in postmodern architectural theories as identified by Nesbit relate to themes of postmodern cultural theory. They are

>"history (the problem of disciplinary tradition), meaning, social responsibility (ethical engagement versus autonomous practice), and the body." (Nesbit 1995: 40) "Architectural theory extends the concerns to the city as a cultural artefact, and to place, the phenomenological sense." (Nesbit 1995: 40)

Nesbit argues that these themes were considered as part of the modernist paradigm, and that the shift to postmodernism relates more to the renewed emphasis on the individual and context.

The architectural theme of **history** is most relevant when defining architecture in the recognition it gives to context. The relevance of history is in the connection established between time and place which inevitably relates place with context in its broader sense. In architecture this notion is identified through the stylistic identification of architectural forms. However the relevance of historicism is also related to consciousness of "traditions of the past" (Nesbit 1995: 42) and the opportunity of providing meaning in architecture through re-use of, or reference to historical forms. Robert Stern (1969) argued for an architecture which relates to contextualise, the individual building as a fragment of a larger whole, "Allusionism, "Architecture as an act of historical and cultural response"; Ornamentalism, "The wall as the medium of architectural meaning." (Stern: 1969)

In essence, the theme of history within architecture provides an argument against modernism and a "radical break from the past" (Nesbit: 1995) while developing a new argument that relates strongly to other themes in architectural theory; i.e. Meaning, Place and to aspects of Urban Theory. The relevance of modernism as a paradigm, in a historical sense, forms part of the debate and allows for recognition of the value of all of history inclusive of modernism. Nesbit classifies this debate as "Pro-modern Theories". (Nesbit: 1995)

The theoretical theme relating to **meaning** considers the relationship of form and function and how typology provides meaning. Typology connects built form to culture and tradition and establishes signs and symbols. The postmodernist debate questions the concept of "form follows function" of modernism to re-establish a sense of meaning where form relates to type. Eisenman, Eco and Tschumi all consider typology and/or form to be directly related to meaning. Porphyrios extends the debate to include the relationship of tectonics as the structural base: "the goal of architecture …is to construct a discourse which, while addressing the pragmatics of shelter, could at the same time represent its very tectonics as myth" (Nesbit: 1995) This argument for the meaning of tectonics continues within a phenomenological debate in which, Norberg-Schulz, Frampton and Pallasmaa consider 'architecture's ability to gather' in a process of creating meaning.

Nesbit (1995) argues that the theoretical theme of **Place** deals with four concepts: Man, Architecture and Nature; Place and Genius Loci; Confrontation and Dwelling and lastly Place and Regionalism. Heidegger's statement (as quoted in Nesbit 1995: 48) underlines the postmodernist approach as a reaction to modernism:
During the last decades it has become increasingly clear that this pragmatic approach [functionalism] leads to schematic and characterless environments with insufficient

possibilities for human dwelling. The problem of meaning in architecture has therefore come to the fore.

Each of the concepts relating to Place refers directly to a responsiveness to both human needs and to context. All of these concepts will be explored in detail as part of developing a comprehensive understanding of Place and will draw from a broader collection of writings, including more recent collections. (Menin: 2003: Pallasmaa: 2005; Unwin: 2009)

The debate around Place extends itself into the virtual paradigm, which raises concerns around the experience and meaning of electronic place. The issues of virtual place as these relate to architecture impact directly on childhood development. Dudek (2005) considers the potential of a digital landscape, but concludes "One of the challenges of contemporary design is to adjust to this lack of identity in a place" (2005: 176)

The postmodern theories relating to the **urban** environment which are concerned with responsiveness to human needs and context are: contextualism, Theories of reading and Meaning; Imagibility; Neorationalism and Typology; and also edge cities. (Nesbit: 1995) The planning practice of functional zoning is questioned in terms of the segregation and loss of community that results. Similarly the predominance of vehicular movement as a driver for urban planning leads to the degradation of community and the loss of placemaking.

The argument of contextualism as proposed by Rowe and Koetter (1975), refers to more than fitting in. It is the notion of collage, a method allowing for a layering of meanings and the coexistence of inherently opposite concepts: "order/disorder, simple/complex, private/public, innovation/tradition". Meaning in the urban environment is considered through semiotics (Barthes: 1967) and Imagability (Lynch: 1960) aims to establish a system (structuralism and post-structuralism) which could provide understanding. The reading of the system is based strongly on perception and makes appeal to gestalt theory. (Nesbit: 1995) Lynch (1960) argues that 'meaning is located in the distinctiveness of path, edge, node, district, and landmark. The argument is directed at creating a sense of place within the city environment – this is relevant to the childhood experience of place.

The writings presented by Koolhaas (1994) relating to contemporary patterns of development are relevant when considering responsiveness to conditions of placelessness. His argument is based on a method of clarification of urban space in the process of densification within open space. His methodology is related to the concept of place as presented by Holl (1989) in his book *Anchoring*. (Nesbit: 1995)

Theories of **Political and Ethical Agendas** consider the purpose of architecture on a macro level in order to understand its responsiveness to society and the environment.

The debate is concerned with the notion of architectures autonomy where it is defined as either "neutral, critical or reactionary" (Nesbit: 1995). Tschumi (1976) argues that architecture forms the 'backdrop for life' and maintains that it is therefore not possible for architecture to be neutral.

The debate around the role of architecture is continued by Ghirando in her argument that Architecture must be a "service profession, engaged in the socio-political realm" (Nesbit 1995: 384). The "ethical implications of architectural work" as established in the *Hanover Principles* (McDonough) relating to the environment emphasises the importance of a responsive architecture. This debate has gained support in recent years through campaigns by the UIA and Architecture for Humanity.

The theme for the UIA 2014 conference (held in Durban, South Africa) was to provide a platform for debate aligned with the argument that architecture needs to respond to both society and the environment. UIA 2014 aimed to "explore space, place and associated meaning, acknowledging architecture as a major force that may be harnessed towards a better life for all." (UIA: 2013)

The final theme discussed by Nesbit (1995) concerns **The Body** and provides arguments that support the relationship between built form and the human body. Although the philosophical base of the arguments is spread between phenomenology, post-structuralism and feminism, the primary argument remains that architecture requires a responsiveness to the human body that is beyond the mere functional requirements of modernism. (Nesbit 1995) In the following section dealing with Place and Experience, a more detailed exploration of the relevant arguments around the body will be discussed.

Figure 4 Children and Place: 7 Fountains Junior Primary Play Area

Source: EastCoastArchitect (2007)

2.2.2 Meaning in Architecture

Architecture and its purposes cannot be defined without considering 'meaning'. The preceding exploration of post-modern theories relates to this question of meaning and the meaninglessness and placelessness which was the result of modernism leading to the international style in architecture. Hertzberger (1991) concluded that every act of making architecture has an impact on people, and more recently he extended this argument to the impact of architecture on children and their development. (Hertzberger: 2008) The argument of this research is that meaning can be understood when we recognise the built environment as contextualised within a multi-layered system including both a holistic response to human needs a holistic way and a response to the environment. This notion refers back to Tchumi's "backdrop for life" and extends itself to the arguments presented by Rasmussen(1959), Rappaport (1982), Norberg-Schulz(1985), Broadbent(1988), Frampton (1983) and, more recently, by Menin (2005) - amongst others.

> "Few seem to appreciate the depth of design endeavour and understanding that it takes to create pleasure from constructed places. Our expectations are too low, the economic and programmatic goals are mismatched to cost in use and an understanding of the absolute importance of architectural, urban and landscape design as the framework for social interaction" (Menin 2003: pxvii)

The definition of aesthetics developed by Baumgarten (1750) provides a sense of architecture as art: "Aesthetics is the science of sensory knowledge directed towards beauty, and art entails the perception of sensory awareness" (Menin 2003: 44) When aesthetics is understood as a "whole body experience" we find the essence of how meaning is established through experience of the environment. Berlemant (2005) argues that there exists a constant interaction between man and his environment. Here the 'environment' should be read in the broader definition of context described earlier.

Rappaport (1982) distinguishes between perceptual and associated meaning associated as regards the built environment. He concludes that Place is Space "plus something", but disregards the notion of place due to the difficulty in defining the 'something'. Menin (2003) constructs a strong counter argument, defining meaning as something established through the construction of place stating that environment without meaning is definable as placelessness. Menin (2003) also draws a parallel between place and aesthetics which allows for a deeper understanding of its meaning. This phenomenological approach is supported by what Heidegger (1962) termed "dwelling", describing how man finds meaning in the world.

People "dwell" when they can orientate themselves within and identify themselves with an environment, or, in short, when he experiences the environment as meaningful.

21

"Dwelling" therefore implies something more than "shelter". It implies that the spaces where life occurs are places "… A place is a space which has a distinct character" (Norberg-Schulz: 1980: 5)

The argument provided by Norberg-Schulz around meaning, genius loci, place and dwelling, is rooted in the work of Heidegger and develops a theory supportive of the notion of architecture as having a purpose "to help man dwell". We can translate the notion of dwelling then as consonant with the process defined as "being in the world", providing architecture responsive to man and to its context.

The four modes of Dwelling as defined by Norberg-Schulz (1985) are relevant as these relate to different contexts of human habitation and indicate the full potential of architecture. They are:
1.   The settlement where natural dwelling takes place,
2.   The urban space, a place of encounter, a milieu of possibilities, a collective dwelling of gathering and assembly,
3.   Institutions or public buildings or dwellings where patterns of agreements common interests or values are established, which form the basis of fellowship and society,
4.   The private dwelling, house or home all have a common denominator: architectural language.

Norberg-Schulz (1985) refers to Heidegger's (1962) notion of language as the "house of being". He describes language as containing the whole of reality and refers to poetry. Poetry is strongly related to architecture also in the writings of Bachelard (1994) as it speaks in images. Norberg-Schulz concludes that poetry is what allows people to dwell both as individual and as community, recognising the relational nature of place. The concept of placemaking as part of a system is also supported by Alexander (1977) in the relatedness of parts towards a complete whole which could allow for architecture to make a "total environment made visible" (Norberg-Schulz: 1980: 23).

In conclusion we can define the **primary purpose of architecture** as:

"The process of creating places for people to dwell".

This definition can be supported in the writing of Robinson (2003) who recognises the self-centred nature of our existence: "Being the focus of the world that one occupies also implies its domination which, in turn, affirms one's position and physically reinforces the significance of its meaning." (Menin 2003: 148)

Place described as "space plus something":

Maybe defining the purpose of architecture as "the process of creating places for man to dwell" necessitates a detailed understanding of place. The following section will build an argument for placemaking from a phenomenological perspective which allows for a necessary connection between place and childhood.

The notion of Place as "space plus something" was first discussed by Rapoport (1982) in his efforts to understand the meaning of architecture. He specifically identified the challenge of defining the so called "something" that creates Place. It is only through a phenomenological enquiry that this intangible notion can become concrete as a phenomenon of. (Menin: 2003)

2.2.3 Phenomenology

An understanding of Place allows for a definition of the purpose of architecture that relates directly to the needs of people. The notion of dwelling is closely related to creating a habitat. Habitation calls for two distinct aspects, the first deals with the physical needs of sheltering, providing a structure in which people are able to do certain activities. The second relates to the existential need of belonging. Our "being in the world" as both Heidegger (1962) and Merleau-Ponty (1962) have termed it.

Understanding the purpose of architecture beyond shelter and function provides the opportunity for meaning as discussed in the preceding section, which allows architecture to become art as well as a science. This notion relates to the theoretical themes of contemporary architecture within the post-modern paradigm as a response to the specific challenges posed by modernism.

Phenomenology as related to architecture can be described as the study of being in the world. The primary aim is to understand the connection between man and his environment. Through this understanding one can find meaning in architecture.

Phenomenological enquiry provides a link between philosophy, psychology and architecture. This relationship is fundamental towards developing a theoretical framework for architecture with a primary purpose of serving society by developing places for children. It provides a link between the issues impacting on the concept of childhood and theories relating to childhood development. Throughout writings relating to the study of phenomenology authors repeatedly refer to childhood experiences as part of their enquiry. (Heidegger: 1962; Bachelard: 1994; Norberg-Schulz: 1980; Pallasmaa: 2005), while from the field of developmental psychology the work of both Piaget (1966) and Winnicot (1986) are considered highly regarded as providing an understanding of man's relationship to his environment. (Norberg-Schulz: 1980; Menin: 2003)

The notion of poetry as presented by Bachelard (1994) brings together environment and meaning through linguistic and artistic means. It relates the ability of poetry to capture the whole being and touch the soul of man. Bachelard poses the question; "what spaces would one remember from childhood?" and states that those spaces contain poetry and therefore provide meaning. His concept of poetic space relates strongly to the concept of dwelling presented by Heidegger (1962) and Norberg-Schulz (1985) as it is defined as a place which can enable a "nest for dreaming" and "a shelter for imagination" (Bachelard: 1994). It is important to note that "place" in this discussion relates to the everyday environment of home rather than to a special or sacred environment; this allows for a universal cross-cultural application and relevance. This argument relates to perceptual theory by acknowledging that the experience of place as described by Bachelard (1994) is dependent on the relationship between the environment and the human body.

At the core of the phenomenology of architecture is the relationship between environment and man, and the potential for finding meaning. The writings of Heidegger (1962) serve as the philosophical base for the architectural enquiry. Heidegger (1962) recognised the interrelationship between man and his environment as inseparable and developed the term "being-in-the-world" to capture the essence of this relatedness. (Seamon: 2000)

The argument is further explored through the notion of intentionality; "the idea that "human experience is continuously directed toward a world that it never possesses in its entirety but toward which it is always directed." (Pollio: 1997) intentionality provides a structure for understanding human existence where the relatedness between man and his environment is determined. (Seamon: 2000)

Norberg-Schulz (1980) based most of his architectural theory relating meaning, genius loci and the concept of dwelling on the enquiry by Heidegger (1962). The intention of this argument is to develop a phenomenological enquiry into understanding the relationship between man and architecture. Norberg-Schulz views architecture as representing a means to give man an "existential foothold", and further argues that the development of a phenomenology of architecture is "to investigate the psychic implications of architecture…" (Norberg-Schulz 1980: 5) This aim provides the required connection between psychology and architecture which is necessary to investigate how architecture could become more responsive to childhood development.

In keeping with the phenomenological method, Norberg-Schulz (1980) claims that all acts of building need to be regarded as architecture. He does not differentiate between different kinds / levels of architecture but states "only different situations which require different solutions in order to satisfy man's physical and psychic needs" (Norberg-Schulz: 1980: 5) This aspect of his theory is important as it relates to Bachelard (1994)

in providing a theory of architecture that moves beyond the elite or sacred and recognises that the **role of architecture is to serve all of society**.

When discussing architecture Norberg-Schulz describes socio-economic factors as a "picture-frame" which provides the situation, but "does not determine its existential meaning." (Norberg-Schulz: 1980: 6) In a similar way, we can define childhood as having universal aspects that precede any consideration of contextual aspects. This method allows for the validity of western thought and research in a South African context. In a direct application the case studies will be contextualised within a specific "picture- frame".

The phenomenological enquiry by Norberg-Schulz recognises that the meaning of existence has deeper roots. This argument relates to Bachelard (1994) in its reference to poetry and is supported by Le Corbusier – "The purpose of architecture is to move us. Architectural emotion exists when the work rings within us in tune with a universe whose laws we obey, recognise and respect." And also Louis Kahn – "What does the building want to be?" (Norberg-Schulz 1980: 6) In the writing of his seminal text; *Genius Loci: Towards a Phenomenology of Architecture*, the concept of Place is provided and explored as "the concrete manifestation of man's dwelling, and his identity depends on his belonging to places." (Norberg-Schulz 1980: 6) The understanding of Place is a key concept in determining how architecture can provide nurturing and stimulating environments for children and will be further explored in the following section of this chapter. First, however, we need to explore more recent developments in the phenomenological enquiry of architecture relating to the experience of place through the human body.

The role of the body in human experience was first acknowledged in the philosophical writings of Maurice Merleau Ponty (1962). His enquiry focused on resolving the convention in Western thought to separate body and mind. (Seamon: 2000) The focus in this work moves from existentialism into the realm of perception allowing for exploration of vision as well as the other sensory abilities. "The whole body experience" is recognised as broadening our understanding of "being-in–the-world" and provides for an interpretation of the man/environment relationship as one of interaction and interdependence. (Seamon: 2000; Pallasmaa: 2003) Pallasmaa explains: "flesh of the world":

> "Our body is both an object among objects and that which sees and touches them….osmotic relation between self and the world… interpenetrate and mutually define each other… emphasise the simultaneity and interaction of the senses" (Pallasmaa: 2005: 20)

Experience through the body is echoed in both the discipline of art by Berlemant (2003) in his argument for aesthetics as a whole body experience and in geography by Gibson

(1966) where he recognises perception as the interrelationship of all the sensory capacities of the body as it relates to the environment. (Menin: 2003) These perceptual theories both have a phenomenological departure and relate to the concept of architecture's responsiveness to man and context.

The architectural theory provided by Pallasmaa (2005) finds its relevance in the broader issue around the quality of architecture. He argues that architecture has lost the quality of "sensory or sensual" and is focussed on a visual world. His argument includes both a view of the Historical prominence of vision as superior to the other senses as well as the impact of the digital/virtual technology on the production of architecture and on society in a broader sense. (Pallasmaa: 2005)

The human body is recognised to be in "the centre". Pallasmaa states that he sees the "role of the body as the locus of perception, thought and consciousness' and argues for 'the significance of the senses in articulating, storing and processing sensory responses and thoughts." (Pallasmaa 2005: 10) This argument is acknowledged in the work of Robinson (2003) where Place is defined as "centre" and the body is defined as a moving point of reference:. In the words of Menin the body, "Being the focus of the world that one occupies also implies its domination which, in turn, affirms one's position and physically reinforces the significance of its meaning." (Menin 2003: 148) Robinson applies the developmental theory of Piaget (1966) that explains how a child understands the world around him in relation to himself.

The argument posited by Pallasmaa (2005) which places importance on the skin or the tactile sense defines the concept of "peripheral vision". This is best explained as unconscious vision, a means of anchoring man to his broader context. By way of contrast he describes focused vision as that which "confronts us with the world". (Pallasmaa 2005: 10) Here we can extend Pallasmaa's concept of peripheral vision to explain the importance of the whole body experience, recognising its inherently unconscious nature.

By returning to Berlemant's (2003) argument of aesthetics the whole body concept can be defined as "synesthetic" - allowing experience through all the senses in a homogeneous manner.(2003: 45) The unconscious nature of sensing is then also described by Gibson(1966) as intimate sensing which requires contact (although it should be recognised as more than just touch). He explains:

> 'These senses include the haptic sensory system, which includes not only touch but also the subcutaneous perception of surface, texture, contour, pressure, temperature, humidity, pain, and visceral sensation…. Add the kinaesthetic sense, which includes muscular awareness and skeletal or joint sensation by means of which we perceive position and solidity through the degree of resistance that surfaces have. And through the vestibular system we indirectly grasp body movement in climbing and descending, turning and twisting, moving

freely or among obstructions. In such ways, environmental perception engages our full capacity for sensory perception in an interpretation of body and context.' (p45) (cited: Gibson: J. 1966. *The senses Considered as Perceptual Systems*. Boston: Houghton Mifflin)

Menin's (2003) contribution is particularly relevant for understanding the meaning of place and defining the essence of place. The relationship between architecture and psychology is made possible through the phenomenological methodology of connecting theory and precedent thus providing a more tangible understanding of the concept of place. The collection of essays referred to are all rooted in the seminal work by Heidegger (1966) and Merleau Ponty (1962) as well as their architectural application through Norberg-Schulz (1980) and importantly, the collection of authors provides an interdisciplinary view within a broader framework of environmental studies.

To develop an architecture responsive to both human needs and context it is necessary to allow for a broader view which draws upon interdisciplinary theories and methods. In this manner the complexity of creating architecture which provides a sense of place need to be acknowledged and acted upon.

Figure 5 Seven Fountains Primary School Library   Source. Derek van Heerden (2009)
Figure 6 Seven Fountains Primary School: Play Area   Source: Derek Van Heerden (2009)

2.2.4 Place Making

Menin (2003) argues that Place can be defined as
> "the setting of the events of human living… it is the locus of action and intention, and present in all consciousness and perceptual experience. This human focus is what distinguishes place from the surrounding space or from simple location." (Menin 2003: 42)

Following on from that statement Menin (2003) concludes, that to understand the concept of place:
> "(the) most essential (thing) in this discussion is the experience of place, the feeling of place, and its origins, since place is the most unique experience of space, it is man's deepest experience of the environment." (Menin 2003: 1)

This definition already confirms the interrelational nature of man and environment. Following on from the argument presented in the section on phenomenology, which highlighted the depth of the man environment relationship, we can conclude that the making or constructing of place in the first instance requires human experience. We can confirm the requirement for human experience by the recognizing the correlation that exists between the concepts Place and Dwelling as internally connected with time and self … Place provides an organising principle for … a person's engagement or immersion in the world around' him or her (Karjalainen: 1998) discussed here: environmental relations (are) created in the process of human dwelling …Interrelational critical analysis of the work of Becket, David Addeman (2010) confirms the nature of man and place. His study is based on the philosophical views of Bachelard, Merlieu-Ponty, Casey and Malpas which connect man and place primarily through memory and body.

The argument presented by Menin (2003) provides the determinants of place as:

• Physical identity; (features that set apart)
• Physical coherence; (creating a whole)
• Distinctive meaning – (human connection)
• Aesthetic quality – (more than beauty, focus on experience)

These determinants allow for a more concrete understanding of Place-making, and bring the notion of being-in-the-world into the realm of architecture. We can relate each of the determinants to architectural theories, translated into built form and methods. Physical identity is recognised in the work of Norberg-Schulz (1980), Lynch (1960), Alexander (1977) and Frampton (1983). The notion of Physical coherence refers to Alexander (1977), Hertzberger (1991), Kurokawa (1977), Holl (1989) and Frampton (1983). Distinctive meaning relates to the phenomenological theories which (amongst others) include Rapoport (1982), Norberg-Schulz (1980), Broadbent (1988), Day (1975) and Frampton (1983) Lastly, Aesthetic quality is supported by Pallasmaa (2005), Von Meiss (1997) and Zumpthor (2006)

All of the determinants discussed are supported by Unwin (2009) in a way that relates to the everyday and sacred, in placemaking. His arguments also recognise the possibility of non-architects to create place in a conceptual sense. Unwin (2009) concludes that the essence of placemaking suggests a review of the role of architecture in society. Menin (2003) support the notion of the "everyday" and explains the relationship between the maker of place and place within informal design, stating:

> "even with the building of essential shelter the shack is shown to become a 'place' rather than a mere collection of reclaimed materials, because of an intention to make a 'home' which aspires to being like other homes in another, more stable, milieu." (Menin 2003: 8)

Inherent in this argument is the interrelationship that exists between "creating selves" and "creating place." (Menin 2003: 6) We can conclude that an underlying complexity

and depth is required in the process of placemaking, specifically within a community attempting to establish ownership. This proposed review of the purpose of architecture is to further the development of an architecture that is responsive, allowing for a consultative process, engagement from the community and recognition by all the users.

Placemaking strategies have their origin in the relationship between man and nature. Menin acknowledges that Place applies only "to a complex field of perceptual experience involving person and setting... " Norberg-Schulz (1980) discusses the notion of Genius Loci to develop the relatedness between natural and built environments; floor, walls and ceiling becomes ground, horizon and sky where primitive man wandered the earth modern man wanders the city and Place gathers and allows for orientation. This argument is aligned with Lynch (1960) who denoted the concept of orientation in the city through node; path; edge; district.

Norberg-Schulz (1980) acknowledges that the two psychological functions of place are to provide orientation and identification: "To gain an existential foothold man has to be able to orientate himself; he has to know where he is. But he also has to identify himself with the environment, that is, he has to know how he is in a certain place." (19)

We can conclude that the concept of placemaking provides a methodology that enables architecture to become more responsive to the needs of people and its own broader context. This proposed argument for a more responsive architecture is supported by the theory of Critical Regionalism as presented by Frampton (1983). The approach proposed here, however, will find greater depth by linking place with experience (perception), and by acknowledging the potential of architecture to impact on society.

Canter (1977) provides a supporting argument for the importance of Place in human behaviour from the perspective of Environmental Psychology. His work focuses on providing measurable evidence to support the notion of Place as meaningful. Some of the evidence refers to the impact of the environment on children in particular.

2.3   PLACES FOR CHILDREN

"If the house is the first universe for its young children, the first cosmos, how does it shape all subsequent knowledge of other space, of any larger cosmos?" (Bachelard 1994: viii)

Universally we can trace various theories of child development and the related development of educational practices (as presented in the discussion below). These theories are primarily represented by a Eurocentric approach which tends to be rooted in the sciences rather than Anthropology or Cultural Studies. As this research is situated within an African context one wonders if these theories are still valid. The Traditional African understanding of childhood and becoming an adult seems to be aligned with the notion of Lifecycle presented by Alexander (1977). The learning through childhood relates also to the Montessori system, as well as elements of the educational theory of Reggio Emilia where self-directed learning is key. The notion of apprenticeship bears the closest resemblance to traditional African upbringing where children, from a young age, are given tasks and responsibilities appropriate to their ability. The children are part of the family and community and the purpose of learning and development is simply focused on entering the adult world. The transition occurs sometimes at a younger age than in the European tradition.

At the outset of the research we determined that 'A child is a child' and that is still the case. The concern of context becomes relevant as one attempts to understand how children fit into contexts. Due to the Post-colonial (and now democratic) position of South Africa most current theories of child development and education are borrowed

from the European tradition. It seems that the value and relevance of pre-existing traditional African practices may be lost in this process.

2.3.1 Childhood   Development
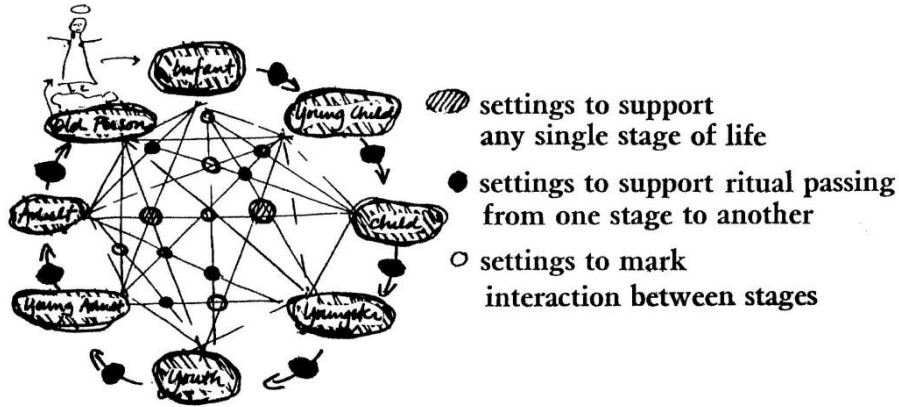
Figure 8 Life Cycle: Christopher Alexander (1977: 145)

The seminal work *A Pattern Language* (Alexander, et.al: 1977) introduced the importance of the process of development from birth through to old age in the Pattern 26, Life Cycle. The Pattern is described, firstly, as passing through seven ages, as identified by Erik Ericson (1950), each being a distinctive developmental phase notable in its connectedness with the community. The argument of Pattern Language revolves around interconnectedness. The book proposes an almost universally applicable system for human habitat. The notion of community is a constant theme. It is proposed in *Life Cycle* that without a balanced community the stages of development could become 'flat' without emphasis, or depth. The passage from one age to the following needs to be specifically marked:

> "Everyone recognises the fact that a person's life traverses several stages – infancy to old age. What is perhaps no so well understood is the idea that each stage is a discrete reality, with its own special compensations and difficulties; each has certain characteristic experiences that go along with it." (Alexander, et. al. 1977: 141)

STAGE	IMPORTANT SETTINGS	RITES OF PASSAGE
1. INFANT *Trust*	Home, crib, nursery, garden	Birth place, setting up the home . . . . out of the crib, making a place
2. YOUNG CHILD *Autonomy*	Own place, couple's realm, children's realm, commons, connected play	Walking, making a place, special birthday
3. CHILD *Initiative*	Play space, own place, common land, neighborhood, animals	First ventures in town . . . . joining
4. YOUNGSTER *Industry*	Children's home, school, own place, adventure play, club, community	Puberty rites, private entrance paying your way
5. YOUTH *Identity*	Cottage, teenage society, hostels, apprentice, town and region	Commencement, marriage, work, building
6. YOUNG ADULT *Intimacy*	Household, couple's realm, small work group, the family, network of learning	Birth of a child, creating social wealth . . building
7. ADULT *Generativity*	Work community, the family town hall, a room of one's own	Special birthday, gathering, change in work
8. OLD PERSON *Integrity*	Settled work, cottage, the family, independent regions	Death, funeral, grave sites

Figure 9 Stages of Development with associated settings.   **(Alexander 1977: 144)**

The term "balanced community" here refers to the representation of the full cycle within the community, along with important settings related to each age.

Notably the early childhood stages involve "making a place" as "rites of passage", which confirms theoretical discussions in the preceding section.

Early childhood represents a phase in life where development occurs at an incredibly fast pace. As the starting position of development it is also recognised as the foundation on which all future development is built. The National Scientific Council, Centre for the Developing Child at Harvard University extends these general observations to establish the core concepts of development as follows:

- "Child development is a foundation for community development…capable children become the foundation of a prosperous and sustainable society.
- Brains are built over time.

- The interactive influence of genes and experience literally shape the architecture of the developing brain…relationships... community.
- Both brain architecture and developing abilities are built "from the bottom up".. with simple… providing a scaffolding that can advance over time.
- Toxic stress in early childhood is associated with persistent effects on the nervous system and stress hormone system that can damage developing brain architecture and lead to lifelong problems in learning, behaviour, and both physical and mental health.
- Creating the right conditions for early childhood development is likely to be more effective and less costly than addressing problems at a later stage."
- (NSC of DC 2005:2)

The message is clear, ECD that is nurtured in an environment (people and place) that supports children increases the chances of developing strong foundations.
This foundation has been studied in the discipline of Developmental Psychology and has been applied in various ways to establish educational theories and pedagogies.

Of the different themes considered in Developmental Psychology the most important notions relating to this research are firstly the influence of **physical environment 'Place'**); secondly the influence of sociocultural context. "The values and resources of the society in which a child lives have a major impact on progress in physical, social, emotional and cognitive development" (Bukatu, Daehler 1995: 39) This aspect considers how context impacts on children's development and exposure to context from within a specific place. Thirdly, the active role of childs play in development. Bakuta, Daehler state that ".. children are not simply passive recipients of surrounding influences, blank slates on which the environment writes; their own capacities and efforts to engage, to get 'mixed up' with their physical and social world often modify the kinds of things that happen to them….affect their development in profound ways." And "Children may contribute in their own development by actively constructing and organizing ways of thinking, feeling, communicating, …that assist them in making sense of the world". (Bakuta, Daehler 1995: 40-41)

Further themes in Developmental Psychology consider whether development is continuous or discontinuous; how prominent differences in development are between individuals and how various domains of development interact. Domains refer to the different areas in which children develop (physical, psychological, emotional, cognitive etc.).

The most referred to developmental psychologist (in both educational and architectural literature) seems to be Jean Piaget, of Swiss origin and also defined as a philosopher. He is known for his epistemological studies and his theory of cognitive development or

stages of development. Piaget, like Erikson, recognises that young children's cognitive processes are different from those of adults.

He defines the following childhood Stages:
- <u>Sensori-motor (birth -2 yrs)</u> – Differentiates self from objects – Recognises self as an agent of action and begins to act intentionally. – Achieves object permanence.
- <u>Pre-operational (2-7 years)</u> – Learns to use language and to represent objects by way of images and words. – Thinking is still egocentric. – Classifies objects by a single feature.
- <u>Concrete operational (7-11 years)</u> – Can think logically about objects and events, Achieves conservation of number (age 6), mass (age 7) and weight (age 9) – Classifies objects according to several features and can order them in series along a single dimension such as size.
- <u>Formal operational (11 years and up)</u> – Can think logically about abstract propositions and test hypotheses systematically – Becomes concerned with the hypothetical, the future, and ideological problems.

Piaget based his constructivist educational theory - which considers a process of experiential learning, active learning and learning by doing - on the way the child adapts to the world through assimilation and accommodation. He defines Assimilation as the process through which a child takes material into his/her mind from the environment (which may mean changing the evidence of their sensory experience to make it fit). Accommodation is defined as the difference made to the child's mind or concepts as a result of the process of assimilation. These processes are inter-relational and interdependent, and constitute development.

Constructivist Theory has been widely applied in the educational field not only at the level of early childhood development but throughout the educational process. It is important to note that this theory describes the child as active in the learning process, rather than a passive recipient of instruction from a knowledgeable adult. It is also worth noting that the constructivist method forms the foundation of Architectural Education, practiced widely. The image that best describes the constructivist method is that of "Apprentice and Master" as discussed in *Pattern 83* (Alexander 1977: 412) The Apprentice works alongside the Master, (following but also exploring his own) technique or strengths. Although this system is usually seen as more appropriate for adult learning it has been implemented in various forms in the early childhood years where the notion of "work" is simply replaced with "play".

The system provides a safe learning environment that has structure and limits but (at the same time) provides challenge and an opportunity to explore the unknown. Day (2007) describes this contradiction of challenge and certainty as a developmental need. He constructs the flow of development as follows:

State = Trust   >   Wonder   >   Curiosity   >   Control   >   Determination to change the world

Environmental Quality = Integrity > Magic > Sensory Exploration > Creative Intervention >Inspiration.

In essence the development of the child is directly related to his relationship with his environment.

Similarly Vygotsky (1978) emphasises the social and cultural setting required for development. When referring to place, his argument implies a specific context with unique attributes. Day (2007) relates the setting to the so called "in-between" world that a child occupies. Day explains "Once children become aware of separateness from (their) mother, they inhabit a world between self and environment, between fact and fantasy" (Day 2007: 14) He refers to Vygotsky's argument of the need for fantasy in order to allow for play. This requirement for fantasy or the "unreal" when designing spaces for children is certainly recognised by the media, by film and by the discipline of literature. However when it comes to the design of spaces for children it is put aside to underscore pragmatics, the economy and safety. This neglect of the "unreal" is further emphasised in developing countries where minimum resources determine the provision of basic needs prioritizing educational resources rather than using what is already there in an innovative way, as children naturally would.

Bronfenbrenner (1989) worked with in the **systems thinking** and provided an Ecological Model for child development. In essence systems thinking refer to the

interrelation of parts to the whole, with reference to the ecological system where all aspects of the system influence and contribute to each other in forming the whole. In child development the ecological model recognises the broad range of contexts that contribute to the development of the child. Bronfenbrenner developed a visual diagram to explain the various systems involved in childhood development with consideration of the role of the person as an active contributor within the system. The argument relates the systems thinking of Christopher Alexander (1977) applied to the design of the physical environment. Similarly Herman Hertzberger (2008) considers the school environment and its relation to the city in a systems thinking manner. In these architectural theories the role of the child and her development are integral to the context or system that support it.
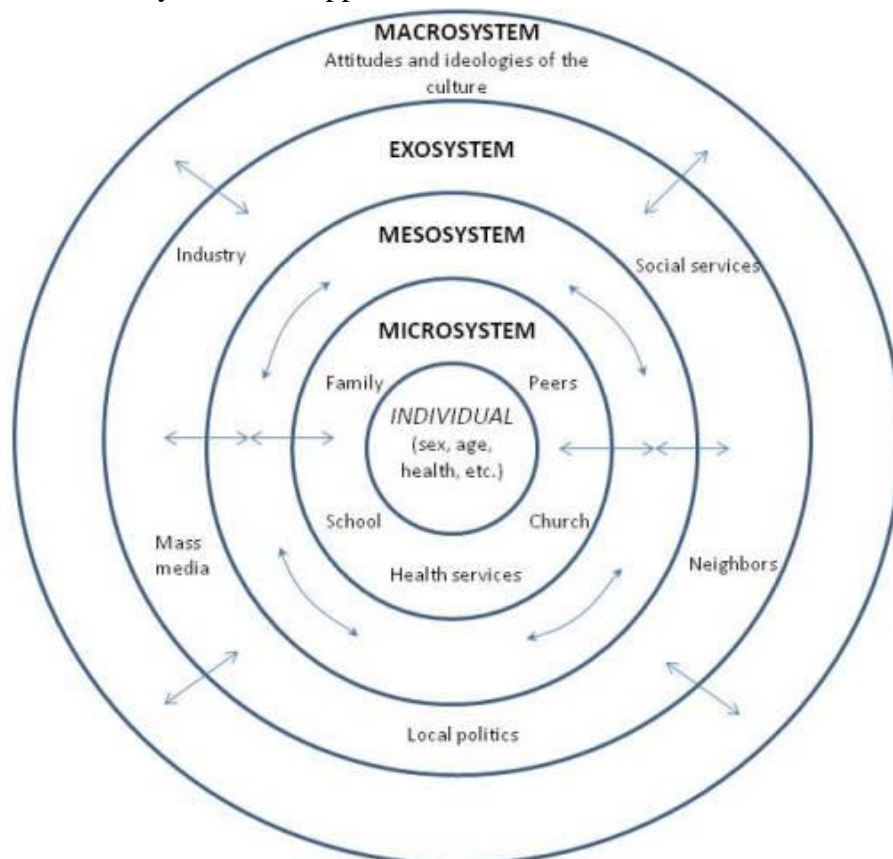
Figure 11 Bronfenbrenner Ecological Model of Childhood Development **(2005: 306)**

The work of Winnicott (1973) an English Paediatrician and psychoanalyst considers the role of the environment as definitive for development. He describes both the mother and the physical environment as creating a "holding environment." The concept of "holding" bears a strong resemblance to the concept of "dwelling " proposed by Norberg-Schulz (1985) It is within a protective environment that the ability to experience the body as a place in which one feels secure, is grounded. From the mother to the immediate surrounds (cot, bath, changing mat etc.) the holding environment extends to include an ever-widening circle of family / home and the outside world (school, park, teachers and more). (Winnicott: 2002) The concept of holding

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(understood as a passive position of the child) is further extended to include childhood play, a more active role of being alive and exploring one's own sense of being. This concept of play is not confined to children. Winnicott proposes in the text "Playing and Reality" (1971) that adults continue the practice of play through sport, artistic endeavours, hobbies and cultural expressions. This continuity of play is what connects the worlds of children and adults. Winnicott establishes transitional objects as enabling play, acting as transitions or bridges between oneself and others. From a background of architectural research into place making, transitional objects may be extended to include the physical environment and specifically the idea of the role of the natural environment. This connectedness to outside of self is established within the first three years of life and forms the foundation of early childhood development, the forming of one's identity.

The role of play and the role of the environment in enabling play is also explored by Hertzberger (2008) In his argument in *The Learning City*, he states that "The city for children is a better departure-point for the city for everyone" (Hertzberger 2008: 235) He continues to propose that a world for children is also a world for adults, for adults and children are; " the same animal, inseparable from and dependent upon one another. Children are not subject to metamorphosis the way a caterpillar changes into a butterfly." (Hertzberger 2008: 235)

Figure 12 Fire Man: Role Play. IY   source: Debbie Smith (2016)
Figure 13 Cooking, Shopping, and playing house in the Fantasy Play Room, MG   by Author (2016)

2.3.2 Children versus Adults

From observing my own children I have noticed that, as they grow older, they lose the memory of being young. It is an almost instantaneous process, the experience of not being a baby any longer. The toddler would find the actions of the babies odd; likewise the 10 year old finds the struggles of her 6-year old sibling outrageous (completely ignorant of the time when she had worked through the same struggle). How much

further removed, how foreign, do these actions, abilities, needs and uniqueness's of a young child seems in the adult world.

Throughout the literature relating to child development and environmental design for children, fundamental differences between the adult and the child are emphasised. This differentiation is concerned with various aspects. In the first instance, the way in which adults see children will establish the kind of care, education, parenting and environments they see fit to provide for children. In this instance it should be recognised that the approach to decision-making with regards to what is fit or not is most often a top down approach, where children do not have a voice.

A further consideration would be to seriously acknowledge the stages of the life cycle as described in *The Pattern Language* (Alexander: 1977). The "adult" decision makers have already moved through the various stages and are most often in the second- to- last age of adulthood. Although we acknowledge the adult already present within the child (Hertzberger: 2008), the opposite seems to be negated by the development of multiple stages, resulting in a position where the child is lost within the adult. Related to this concern is the natural position of authority that an adult has over a child. Although this is of course a requirement to establish boundaries and structure in the life of a child, it does sometimes limit the understanding of the adult.

Sensory

One of the prominent differences between adults and children relates to the functional description of physical environments and objects within. Where an adult may define a long narrow passage as a circulation space, a child will see the opportunity to run the length of the space, even using the walls as supports to climb. If the end of the passage is dark; a young child may perceive the space as mysterious or representative of the unknown. The concept of "affordance" was defined by perceptual psychologist, James Gibson (1979), to describe the functional significance of environmental features. Of importance is that functional significance is always defined in relation to individual. This allows for differences in perception and also for a variety of attributes when describing the same environmental feature. The example of a tree in the landscape is used to explain how it could afford: resting in the shade, protection from rain, swinging on a low branch, climbing to provide a viewing point or simply a place to rest in. It is clear from the range of affordances a tree provides, that a child may consider very different option to an adult. (Heft: 1988)

This functional affordance could also be extended to describe the ability of some environmental features to enable dwelling, as discussed in the first part of the literature review. Drawing from the example of a tree, the tree may be described as providing place, protection, shelter, a viewing point and in the world of the child, it could also allow friendship. Chatterjee (2009) refers to both Heft (1988) and Chawla (1992) in her

research on developing the concept of child friendliness of place. Actualised affordance describes the relationship possible between the child and the environment through continuous and changing engagement. Actualised affordance allows a child to develop place attachment. Although these same concepts could be applied to adulthood, the adult perception changes as adults live in an established framework with controlled interpretations of environmental attributes.

Scale

Related to affordance of the physical environment are the architectural concept of scale and the study of anthropometrics. The study of anthropometrics includes a comprehensive consideration of the differences in physical properties of the human body. The sizes of young children are relatively small in scale in comparison to those of adult. The concept of scale in architecture refers not only to the size of the person but also to the size of physical environments and objects and how these relate to each other. The scale of the environment impacts on the experiences of both children and adults, but difference is established in terms of affordance. A child may perceive the space underneath a stairwell as providing enclosure, a place to sit or hide, whilst the adult may perceive the space as wasted or only good for storage. In the design of spaces for children, the scale of the physical environment can provide for both adults and children only if affordance is considered through consultation with and observation of both groups.

Ability

The notion of "ability" refers to the stage of development that a child is at. In the 0-6 age range we can define the following phases: pre-birth, Infancy (0-2), Toddler (2-3), Pre-School (4-5) and Gr R (5-6). Each of these groupings would include "scaffolding", in the development of various physical, emotional and cognitive areas that impact on an increase in ability. Each individual child however develops at his or her own pace and may show strengths in some aspects while in others lag behind. A "place" for children needs to acknowledge these differences if it is to provide an inclusive environment.

The Theory of Multiple Intelligences as developed by Gardener (1983) considers eight forms of intelligence in contrast to the standard approach to the measurement of intellectual ability. This theory has major impact on how educators and psychologists view children. The eight intelligences are defined as Verbal, Logical, Musical, Visual, Interpersonal, Intrapersonal, Bodily and Naturalistic. Recognition of these intelligences requires firstly an approach to environmental design that provides for the whole child much in the same way as has already been established in the preceding theoretical discussion of **Aesthetics**, **Architecture** and the **Body**, and **Place** making. (Palasmaa: 2005) Secondly the theory also requires an inclusive environment that considers disabled or mentally challenged children as well as multiple intelligences within a group of children.

Gardner defines intelligence as "the ability to find and solve problems and create products of value in one's culture" (Campbell 1992: 197).

A study of the implementation of Multiple Intelligence Theory in China concluded that the primary reason why the theory has been widely accepted as part of a curriculum reform since 2000, is related to the relationship that is perceived to exist between adults and children. The family unit is seen as a human body where functioning parts are inseparable from one another, where each part has strengths and weaknesses. The strength and weaknesses could be interpreted as different intelligences. (Chen: 2006) This interconnectedness of adult and child in the role of the family is a culture-specific phenomenon but the notion does bring us back to Hertzberger's argument that the adult is already present in the child and therefore the design of physical environments should take into consideration the needs of both adults and children.. We can propose that the opposite is also true that within each adult the child is still present and that an environment that enables play will enable adults to re-establish their connectedness with the child inside themselves. Hertzberger states: "You never stop absorbing new experiences." (2008: 235)

Nature

Children possess an inherent affection for nature; but unless this relationship is nurtured during childhood it may be lost and even become an aversion. The natural environment provides for imagination, stimulation and diversity simply by being a garden, slightly tamed and slightly wild. The intentions of affordance and multi-sensory experience are built into the design. With some animal life and edible gardens, an ecosystem can be established. Gardens are naturally therapeutic and if direct access is not possible may be accessed through visual contact, sound and smell.

Figure 14 Children climbing a tree. IY
Source Debbie Smith (2015)

All of the literature already discussed relating to child development considers the natural environment as crucial to providing nurturing places for children. The most important aspect of any outdoor play area that forms part of an ECD setting is the notion of freedom. Children are perceived to become both more spontaneous and more

reserved within environments that provide a sense of openness, and a less structured natural area. This is supported by Dudek, who says:

> "The literature suggests that outdoor play may be particular liberating for less advantaged children and for boys, who may find a greater freedom to talk, to develop dramatic scenarios, to organize cooperative play and to engage in vigorous, sometimes noisy, physical activity without inhibition."
> (Dudek 2005: 199)

The Matal Early Science Learning system developed by Dr Dina Stachel (1986) from Israel is based on using a child's exposure to natural elements and objects. The system was developed and implemented in Israel to positively impact on children affected by poverty in an attempt to improve outcomes in Maths and Science in later school years. Dr Stachel presented her work in South Africa in the 1990's and it has been successfully implemented in early- year teacher training and pre-school systems. The system is dependent on an outdoor environment that features a variety of natural elements and objects. For example one of the components deals with developing an understanding of solids and liquids by exploring water-based elements and a variety of solid elements - exploring wood, stone, sand, metals (and so forth).

Figure 15 School Gardening Before and After. IY   source Debbie Smith (2016)

A further component of the outdoor area created for early childhood spaces is the opportunity to grow plants. This opportunity not only relates to understanding biological systems but also provides edible landscapes. The children can grow their own vegetables, and contribute to the provision of healthy lunches.

These opportunities for learning can all be conducted in a play-based system, where not only factual information is learned. Education extends to life skills and respect for the natural environment.

2.3.3 Learning through Play

Central to the concept of children's play is active ownership by the child. Play flows naturally from children; it is not possible to teach play, or to impose play. Play includes the modelling of behaviour of others at play. The positive connotations of play also relates to "enjoyment, spontaneity, involvement, persistence and concentration"
 (Dudek 2005: 198)

Sensory

From birth a child applies all of its senses to experiencing the world. This experiencing of their environment, whether physical or through social interaction, provides for a steady progression through to adulthood when thinking become much more detached from sensory experiences. Day (2007) explains how an adult will create the full picture of a movie through past sensory experiences connected with imagination and assumptions.

To a young child both every aspect of the world is new and intriguing and more importantly worth exploring. Children need to experience through their whole body as they are not yet able to distinguish different sensory inputs into classifiable units. For example an adult already knows that music relates to hearing while seeing invites touching. Before verbal communication develops, a child communicates through of its senses. Day (2007) argues that children experience while adults perceive or think.

Loris Malaguzzi has raised concern around the lack of sensory experiences provided for children. He refers to "a hundred languages" but complains that often only one language is provided for learning. This concern refers to the curriculum, the methods of delivery and certainly to the physical environment. Sensory stimulation is essential for child development as much as nutritious food is essential for building a healthy body. (Day: 2007)

Day (2007) furthers his argument by stating that our senses are not limited to the five conventional senses. To include the whole body requires the sense of movement, balance and warmth. Beyond the obvious physical senses he also posits the 'finer senses' as essential:

"Without the sense of well-being, language, thought and individual spirit, we can't be environmentally aware, socially responsible or insightfully engaged. The 'higher', spirit-revealing, senses – sound-music, language-meaning, thoughts-and-concepts, and individual-essence – build human wholeness."
(Day 2007: 96)

It is important to note that the development of these "higher" senses is related to the development of the "lower" (physical) senses. Lack of sensory stimulation, specifically in the early years, impacts on a child's brain development. Day concludes his argument by pointing out the relationship that exists between the senses and thinking; this is what differentiates experiential learning as opposed to objective (book) learning. Multi-sensory learning is anchored in reality and allows for a multi-dimensional view of reality. An understanding of relationships is built through multi-sensory experiences:

" Each sense has different boundaries, tells us (about) a different aspect of the world and brings us into a different relationship with it…. Multisensory awareness encourages multifaceted, trans-category, feeling-related thinking."
(Day 2007: 97)

Exploration
"[The] determination to explore is… an essential ingredient for learning and healthy social development." (Dudek 2005: xvi)

Considering that exploration forms a fundamental method of learning about the world and achieving new abilities we can establish that childhood development can only be severely hampered without exploration. Dudek (1996) speaks about an Architecture for the imagination, reflecting Piaget's description of the first six years of a child's life as the period of "intuitive learning"

Exploration requires a sense of place to enable children to test their limits. It is through the testing or experimentation that a child learns to sit or stand or talk. Similarly a child gathers information through their senses by experiencing the unknown. To a young child most of the world are new and requires discovery. Sensory stimulation is not possible where the environment provides not possibilities for exploration.

Exploration through play is directly related to the stage of development. A baby that is not mobile yet can only explore what is placed within her reach. The need to move is certainly intensified by the urge to explore beyond his immediate surroundings.

2.3.4 Pedagogy

The close relationship between the physical environment and pedagogy has been confirmed by several architects specialising in the field of educational architecture. Mark Dudek reviews key figures in education as a point of departure for his studies on Kindergarten Architecture (1996) as well as for the *School and Kindergarten Design Manual* published in (2008). Similarly the detailed study of architecture for schools by Anne Taylor entitled *"Linking Architecture and Education"* (2009) explores the relationship between environment and pedagogy in terms of its philosophical base, the theories developed and the practice of the two disciplines. From an architectural perspective, the design process requires an understanding of how spaces need to support the activity and requirements of the user. To establish a responsive architecture for the healthy development of children it is imperative that the pedagogical issues be considered.

A counter argument against this pedagogical requirement is the reality of constant change that seems to envelop the educational systems throughout the world. In the majority of countries where literature on school designs is available, constant reference is made to a new or revised system of education. However within this constant evolution of pedagogical theories, specifically related to Early Childhood Development there appear to be key thinkers who have impacted in a more lasting manner on the development of current systems of education as practice. For the purpose of this research two figures need to be highlighted, as their pedagogy has direct implications for the designing of spaces for children.

Figure 17 Children's tea party. IY source Debbie Smith (2015)

The work of Maria Montessori (1915) responded to a particular need of urbanism in the early 1900s in Italy. Her approach aimed to give children more independence, with a focus on 'learning to do it yourself'. Montessori developed a system whereby the child is able to carry out daily tasks on his/her own within an environment that scaled down to "childsize". One of the reasons for this is to enable the development of motor skills. By practicing certain activities on a smaller scale the child masters the principles involved and would be able to later progress to the larger scale of the adult world. An example of this is the provision of light tables and chairs that the children can move on their own.

The system is based on the recognition of sensory exploration inherent to early childhood development. In particular the sense of touch was recognised as having great value to the young child. The majority of ECD centres have adopted several of the Montessori methods, most notably the use of scaled-down furniture and equipment provided, with the environment forming a background for more active participation by the children.

Howard Gardner's (1983) Theory of Multiple Intelligences is primarily concerned with recognising that intelligence cannot be confined to the generally- recognised concept of intelligence. His background in Development Studies eventually led him to establish that intelligence is multifaceted and should be recognised as such. This theory has had a major impact on how education has transformed in the last two decades, allowing for the inclusion of multiplicity into school curriculums. As regards the early childhood stage, the theory provides for a broader range of activities to be included. The multiple intelligences recognised in Gardner's theory are; rhythmic, spatial, linguistic, mathematical, kinaesthetic, interpersonal, intrapersonal, and naturalistic. Each of these intelligences describes the relationship of the child to his/her physical environment. For example, a child with strength in kinaesthetic intelligence (the need for movement) will relate and learn differently from someone with linguistic intelligence. Gardener confirms that Multiple Intelligence theory when applied educationally is concerned with the functioning of individuals within the group. In terms of environmental design, an element of the "non-standard" would be required.

In conclusion we have established in various ways, the integral relationship between childhood and the physical environment as confirmed by Weinstein and David:

> "The slow metamorphosis of a totally dependent infant into a separate and distinct individual is aided and continually reaffirmed by the acquisition of skills, particularly when they involve objects, places and spaces that belong to him or her." (Weinstein and David 1987: 27)

Figure 18 Children at Ramp and sensory panels. LIV   **by Author (2016)**

2.4   ARCHITECTURAL DESIGN FOR CHILDREN

"coming first in a dynamic sequence, [kindergarten] inevitably influences all subsequent development. These years determine character, much as the foundation and frame determine the structure" (Dudek 1996: 9)

According to research in Neurobiology the relationship between genetics and early experience shapes the development of a child's brain.

"The future of any society depends on its ability to foster the health and well-being of the next generation. Stated simply, today's children will become tomorrow's citizens, workers, and parents. When we invest wisely in children and families, the next generation will pay that back through a lifetime of productivity and responsible citizenship. When we fail to provide children with what they need to build a strong foundation for healthy and productive lives, we put our future prosperity and security at risk."(NSC 2007: 3)

In 1923 Arnold Gesell expressed a concern about the powerful impact the kindergarten environment has on child development, as it had replaced the more natural progression from home to the broader community. He stated (relating child development to the development of architecture):

Dudek (1996) proposes an architecture for children that allows for imagination and exploration. His work is based on a thorough study of pedagogy and educational theories that links to architecture. Day (2005) views the development of children as distinct from adult life and questions the ability of an adult to understand and design for the world of the child. His research is based on a holistic world view and considers the issue of the natural environment. These authors both refer to the work of Rudolf Steiner (1907) who established a unique form of architecture for the Waldorf School system, developing a design process promoting exploration and development by the child. The limitations of the research undertaken by Dudek and Day are inherent in their focus on the developed world. However, a detailed understanding of child development, sensory perception and pedagogy in relation to architecture can be translated within a South African context.

The relationship between architectural design and child developmental theory is evident in architectural design guidelines for the design of pre-schools, kindergartens and schools in the United States and the United Kingdom. (CABE: 2008; Proscio et al: 2004) The guidelines tend to be grounded in educational theory and (to a lesser degree) on architectural theory. The guidelines are specifically written for the developed world and may not be relevant in a South African context. However, the research undertaken by Dierkx (2002), on developing models for Primary Schools in Nairobi, Kenya has a strong architectural theory base and relates well in terms of the African context. All of these guidelines and models are concerned with either the design of educational environments only or to the design of urban spaces. This research will be broader in scope, aimed at the built environment, for children in an urban setting.

Hertzberger (2008) proposes the ideas of the School as a Micro-City and the City as a Macro School, to extend the realm of education outside of a formal setting into an informal learning experience that other spaces may provide. He argues that the design of schools is one of the least evolved building types. It is only during the past decade that some exploration has started in this field.

2.4.1 Responsiveness

The term "responsiveness" is generally used to describe response only in terms of the ecological, climatically or so called "green" aspects of environmental design. However, through the theoretical approach established in the first part of this chapter we have already defined Responsive design in terms of how the environment should respond to both context and people.

The requirement for responsiveness has been confirmed throughout the literature in terms of how children's development is interdependent with their environment. Responsive Places for children cannot be achieved without considering who will be living or playing or sleeping within the environment. The case for children's inherent

connectedness to nature has been considered through various disciplines: studies on **Place** (from a geographical perspective), the therapeutic value of the natural environment (as confirmed by psychologists), and numerous studies on the educational value of gardens and of natural environments which have been established and applied in practice.

Dudek confirms this stating:

> "I observed that if children were allowed, they would spend as much time as they could outdoors, in any kind of weather…even when children were not allowed to go outdoors, they still sought to utilize the whole of the interior environment. They would if permitted explore linen cupboards (or any type of feature which enabled this to occur), set up games in corners and niche areas, and, mount stairs to access high level walkways. All of these features were fundamental to the architectural experience…"
> (Dudek 2005: xvi)

The **ECD Centre** or Nursery School is viewed by Winnicott (1973) as an **extension of the family home, as opposed to a downward extension of Primary School**. The Nursery School needs to provide a stable environment that reinforces a sense of being safe and secure within the outside world. Winnicott argues that within the child of 4 years, the child of 3, 2, 1 and new born is still evident and thus need to be considered as part of the design criteria.

Figure 19 Process of community engagement documented by Architects. 7F Source: East Coast Architects (2008)

A further component of Responsiveness must be that it leads directly to an African context, culturally, socio- politically and environmentally. The architectural model presented by Dierx (2002) in *Cool, Schools for Hot Suburbs*, aims at providing environmentally responsive schools in Nairobi and Kenya.

The research preceding the design models investigates the economic, social, political, historical and cultural aspects (along with environment and technological aspects) of the context in Nairobi. From the outset Dierx sets out to understand the unique African traditions and context to provide a framework for interventions. His approach includes bridging relationship between western thought and African applications and practices.

In South Africa a similar approach can be found in the school design by East Coasts Architects, where intensive consultation informs the design process. The unique context is understood specifically from a climatic point of view, but also from an in depth understanding of the users of the building. The end result of this design process seems to provide both quality design and mutual respect between community and architect.

Day (2007) focuses specifically on the importance of environmentally sustainable practices and the application of appropriate technologies as part of the criteria for a responsive design of places for children. His argument is not confined to the generic "green" design often referred to in the last decade, as he extends his argument to include child development and addresses how children relate to their environment. Day considers the natural environment to be one of the most important aspects of the environment to impact positively on childhood development; and also considers it to provide an ideal learning resource. He refers to the opportunity to encourage respect and appreciation for the natural environment which has the power to instil 'silent lessons'. The notion of architecture and nature being supportive in a more direct manner is specifically developed, providing the opportunity of "Learning sustainability through daily experiences" (Day 2007: 245)

2.4.2 The Third Teacher

The concept of The Third Teacher has been developed to describe the potential the physical environment possesses to provide "silent lessons", as stated by Day (2007) A similar concept is provided by Dudek(1996) with his focus on providing a stimulating environment that allows for exploration and play within places for the care and education of children. The work of Dudek extends over the complete range of educational spaces from Kindergarten, through Primary school and into High school. His work provides the relationship between pedagogy and architectural form as it developed in Britain. The concept of the physical environment as a "third teacher" is proposed without necessarily using the specific term. The case study methodologies of

early childhood developmental settings covering Europe and England develop themes for more creative approaches to design. The emphasis seems to be on child-centred spaces achieved through innovative use of form and material and an attempt to create Places for children. Some of the cases considered tend to become architectural statements and seem unconvincing as children's spaces, however these are isolated occurrences. Dudek seems less concerned with sensory experiences, considering rather the visual and kinaesthetic aspects of child development; he also focuses on the affordance inherent in architectural design.

In *"Children's Spaces"*(2005) the focus is still on innovative design, but new topics are explored to consider changes in society and the impact of design on society. In this text, an essay by Eleanor Nicholson, explores the notion of the Third Teacher. The focus, again, is to relate the school building (or classroom) to the curriculum, with the possibility of silent lessons.

Anne Taylor (2009) refers to the physical environment as a three-dimensional textbook, in terms of both built form and landscape. The argument proposed is to move away from a passive silent environment forming the background to an active environment specifically designed to provide learning opportunities. The concept of the found object is used to develop a method for designers to form a "third classroom". Learning from found objects is often used within ECD environments where children walk in the garden to collect autumn leaves or look for specific insects. This same principle can be found in the study of geology and the natural sciences where individual lessons are based on what is found. The argument is further explained:

> "Architects can support the realm of found objects and their potential for learning by incorporating them into their macro and micro designs and allowing the natural, built, and cultural environment of a school to shine through." Taylor (2009:182)

A good example of the application of this concept is to include exposed trusses, using colour to emphasise structural elements, and making of environmental sustainability visible, where rain water collection is designed to be seen. A good example of this is the Seven Fountains School in Kokstad, SA, where a water channel system was included to run along the main circulation spine, so that when it rains the children can clearly see the water running along the channel as it is collected from various roofs.

This method allows not only for a more creative and thoughtful making of architecture, but also a greater responsiveness in the application of Gardner's (1983) theories to accommodate multiple learning styles within the educational environment. There is also support, in terms of childhood development, to provide environments fostering and encouraging exploration, thus allowing children to determine their own learning.

The intention to provide an environment responsive to the multiple ways in which children learn forms the base argument in the recent publication of *"The Third Teacher: 79 Ways You Can Use Design to Transform Teaching and Learning"* (OWP/P Architects, VS Furniture, Bruce Mau Design: 2010) The aim of the publication was to address the issue of low educational standards from an environmental point of view. The practical approach of the publication is rooted in the principles discussed above. Although most of the examples provided are taken from the developed world, it is applicable within the context of a developing world, as the guiding principles are rooted in multi-disciplinary concern with issues of child development explored by universal educational thinkers. The multiplicity proposed in the approach can be related to the "systems thinking" discussed in the ecological model developed to Bronfenbrenner (1989), and its application in architecture by Alexander (1977) and Hertzberger (2008).

Figure 20 Children gathering play equipment to construct a game in their play space. MG by Author (2016)

Figure 21 Nature as the Third Teacher. Reggio Emelia. Source http:www.offbeatmama.com

A pedagogical approach that is grounded in the notion of the *"third teacher"* is what has become known as the Reggio Emila school system. The main principle of this system is that the child actively constructs his/her own learning within an environment that forms the Third Teacher. This approach (which originated in Italy) has been applied in the UK, the US and more recently, in Australia. The approach in

Australia tends to focus on inclusion of the natural environment to an extent that it forms the focus of the ECD centre. The other driving principle is the inclusion of an atelier (studio) area which becomes a central space used by all the classes. Often this atelier also relates to the outdoor play area.

The principles of the Third Teacher as discussed by Hertzberger (2008) and inherent in the Reggio approach, define the manner in which place for children, the ECD centre or Pre-school, relates to their context and therefore also their community.

2.4.3 Community

The story of how the first Reggio Emelia School was started, following the destruction of World War 2 provides one of the best examples of the importance of community. A school physically built by the community, using what was there and what they knew, allowing for complete ownership:

"The history of our approach and of my place in it started six days after the end of the second World War. It was the spring of 1945. I heard that in a small village called Reggio Emilia, **people decided to build and run a school for young children.** That idea seemed incredible to me! I rushed there on my bike and I discovered that it was all quite true. I found women intent upon salvaging and washing pieces of brick. The people had gotten together and decided that the money to begin constructing would come from the sale of an abandoned war tank, a few trucks, and some horses left behind by the retreating Germans. 'The rest will come,' they said to me. 'I am a teacher', I said. 'Good,' they said. 'If that is true, come to work for us.'
It all seemed unbelievable: the idea, the school, the inventory consisting of a tank, a few trucks, and horses. They explained everything to me: '**We will build the school on our own**, working at night and on Sundays. The land donated by a farmer; bricks and beams will be salvaged from bombed houses; the sand will come from the river; the work will be volunteered by all of us.'....Women, men, young people – all farmers and workers, all special people who had survived a hundred war horrors....
Within eight months, the school and our friendship had set down roots. What happened at Villa Cella was but the first spark. **Other schools were opened on the outskirts and in the poorest sections of town, all created and run by parents.** Finding support for the school, in a devastated town, would be a long and difficult ordeal, and would require sacrifices and a solidarity now unthinkable. When seven more schools were added in the poor areas surrounding the city to the 'school of the tank' at Villa Cella, we understood that the phenomenon was irreversible.
When we started to work with these courageous parents, we felt both enthusiasm and fear. We knew perfectly well how weak and unprepared we were. We took stock of our resources – not a difficult task. More difficult was the task of increasing those resources. And even more difficult was to predict how we would use them with the children. We were able to imagine the great challenge, but we did not yet know our own capabilities or those of the children. We informed the mothers that we, just as the children, had much to learn. A simple, liberating thought came thought to our aid, namely that **things about children are only learned from children.** We knew how this was true and at the same time not true. But we needed that assertion and guiding principle; it gave us strength and turned out to be an essential part of our collective wisdom. It was a preparation for 1963, the year in which the first Reggio Emilia municipal school came to life." (ODP Architects: et.al. 2010: 122)

The notion of community goes beyond the involvement of parents in a school; it relates to the concept of **ownership** and **identity**. The place of the school or ECD centre, within its context, needs to move beyond being simply an institution implemented from above by the Government. The above concept of community is specifically relevant to conditions in Africa. There is an African proverb which states: "It takes a village to educate a child".

The approach to community proposed by ODP Architects, et.al (2010), mentioned above, recognises the potential of bringing services together in a multifunctional environment, such as the library, sports facilities, health care, and more. Through this approach, the built environment can contribute to bringing people together and, eventually, create communal a place or dwelling. The same approach is inherent in the argument developed by Hertzberger (2009) where the school is a city and the city is a school. Although his approach is applied on a larger scale the principles remain the same. The environment is seen from the perspective of a systems approach, where the whole (consisting of many interrelated parts) is greater than the sum of the parts.

An important aspect of developing community is the imperative that the design process becomes participative in order to allow for a more responsive environment. The UK based Council for the Built Environment proposes the inclusion of related facilities into the ECD environment. Specifically, the aim is to combine all the services that impact on child development onto one campus. Here not only the children are included but also the parents in the form of Adult Education, Parenting Support courses and the provision of Health Care workers as well as a place where mothers feel supported by the community. The design approach proposed by CABE is participative allowing the design to be informed by input from the built environment's users.

Figure 22 Crèche Play Area with Sports filed, resource centre and homes in context. IY   source Debbie Smith (2015)

My own experience relates to this form of participation where visits to child-care centres include observation of the children, discussions with the teachers and principal, resulting in the development of a responsive design.

A particular project that I was engaged with that provides evidence of this approach was the development of a design for a school for the physically disabled, to be accommodated within a new Academy design. In this specific project my role included interviewing each teacher or specialist, and observing of children within the various spaces, in order to develop data sheets for each space as part   of a consultative process advising design architects.

A further approach to community is provided in *"The Language of School Design: Design Patterns for 21st Century School" by Nair, Fielding and Lackney (2009:170) proposing Design Pattern 24: Connected to the Community*. The approach relates three aspects to the experience of connectedness. Firstly, the physical position of the school as being central to a community, secondly the relationship with other organisations (namely business, industry, recreation etc), and thirdly the way in which the school environment provides a 'welcoming place', specifically by hosting community activities outside of the normal school day.
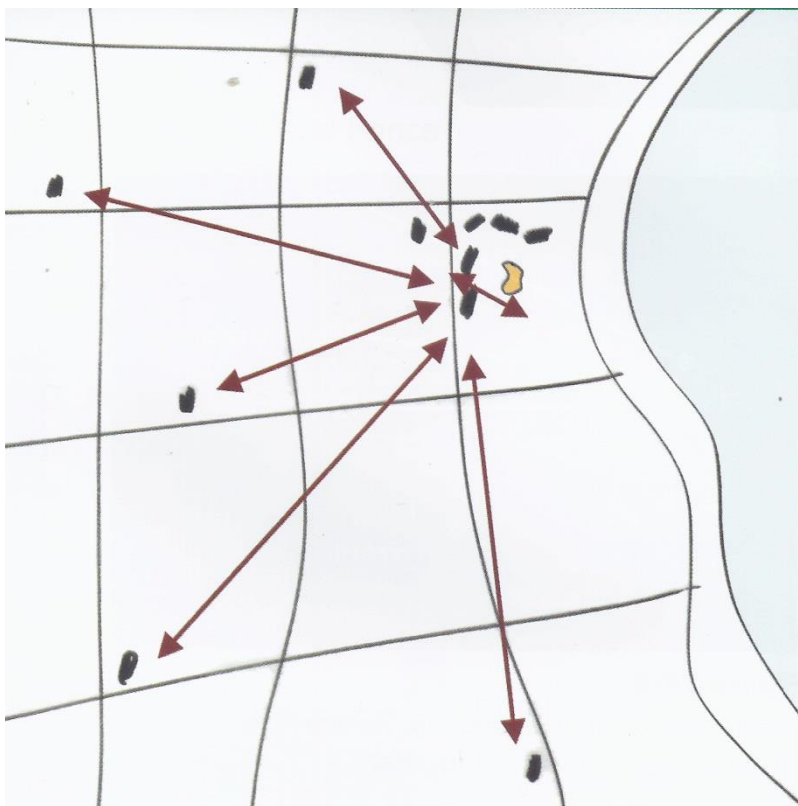
Figure 23 Design Pattern 24: Connected to the Community   (Nair, et al. 2009: 171)

2.4.4 Pattern Language

> "…towns and buildings will not be able to become alive, unless they are made by all the people in society, and unless these people share a common pattern language, within which to make these buildings, and unless this common pattern language is alive itself." (Alexander1977: x)

The essence of the Pattern Language as developed by Christopher Alexander (1977) is that it is rooted in systems theory and recognises the interrelation of parts and the whole. The patterns presented are based on a multi-disciplinary understanding of how people interact with their environment, as individuals and collectively in groups. The implementation of these patterns has the potential to allow for the making of place, to allow for dwelling.

A further important aspect is that ecology is embedded in pattern language. There is an essential understanding of our relatedness to the natural environment and of our relatedness to each other in various forms at different stages of the life cycle. Within the notion of life cycle, the development of children is recognised as an important stage forming part of a larger system.
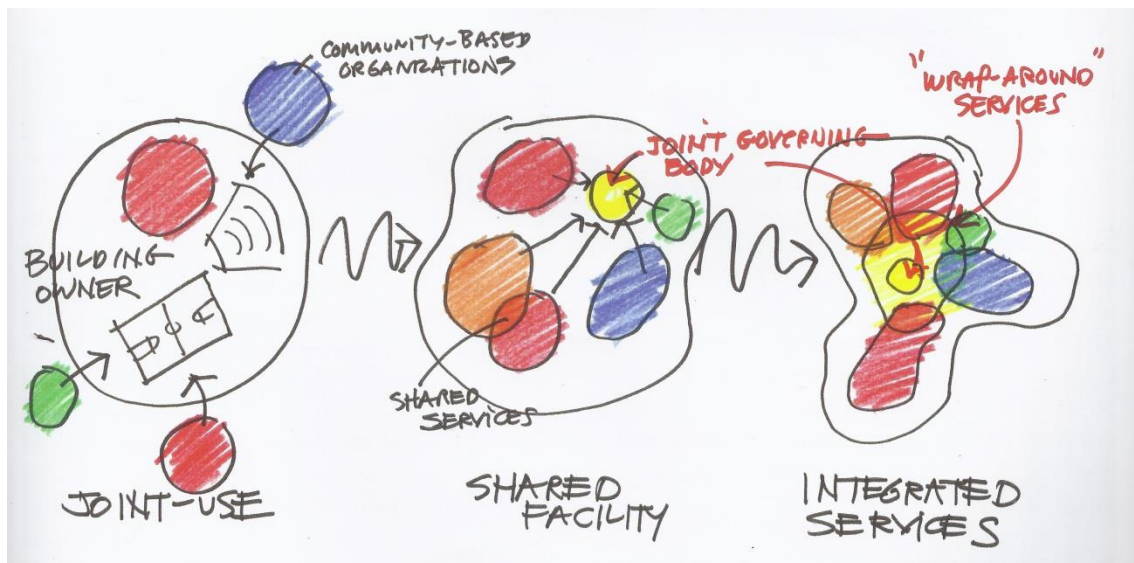
Figure 24 Design Pattern evolved from the original Network of learning. (Nair, et al. 2009: 205)

The pattern 18 'Network of Learning' (Alexander 1977: 99) presents the essential difference between teaching and learning. The network is not physically represented but is a concept of how learning forms part of society. It allows a broadening of the concept of learning to include childhood development with an adult learning process that continues into old age. An important principle can be recognised; that the network of learning does not propose a top-down approach, but rather a natural individualised form of learning that occurs within a community.

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The principles of the learning network oppose a formal approach to schooling by acknowledging the value of learning from experiences, learning from those who have lived the experience and carry a passion for the subject matter. The application of this principle is challenging in societies that have become increasingly reliant on Government-imposed systems, which are predictable and require for standardisation. The principles proposed by the learning network are related to Hertzberger's (2008) concept of 'the city is a school and the school is a city.'

The concept of the school as a micro city brings together many of the concepts already discussed, as it considers the school to be a community, embraces the possibility of the Third Teacher, and is inherently responsive. Although contextual response is less emphasised in Hertzberger's concept, the other aspects are all considered providing an ecosystem of learning.

In *The Language of School Design: Design Patterns for 21st Century Schools* (Nair, et al: 2009) a visual vocabulary is developed to connect learning and the environment that supports it. The book is rooted in both the methodology provided by *A Pattern Language* (Alexander: 1977) and also in systems thinking as related to society and learning. The text identifies four experiential realms of learning environments and connects each with physical attributes. The realms identified are: Spatial; Psychological; Physiological; Behavioural and each comes with a list of possible physical attributes.

The range of attributes presented provides a good view of the complexity that is possible in a whole learning environment. The concept of a "total learning environment" is presented, recognising that learning cannot be confined to the four walls of a classroom. This idea of a "total environment" is similar in principle to Hertzberger's concept; where, school as a micro city is proposed. In relation to this research (which focuses on Early Childhood development) the concept "childhood development" requires further differentiation regarding age

Figure 25 Design Pattern #1e: Learning Studio-based Small Learning Community (Nair, et al. 2009:34)

groups and stages of development. Younger children, at the early stages of childhood development, display different physical attributes from their older siblings, parents and teachers. The notion of "affordance" as discussed in section 2. 3.2 Perception is not considered in this allocation of attributes.

Figure 26 Design Pattern #1g From 1:25 to 4:100 Flexible Small Learning Communities   (Nair, et al. 2009:41
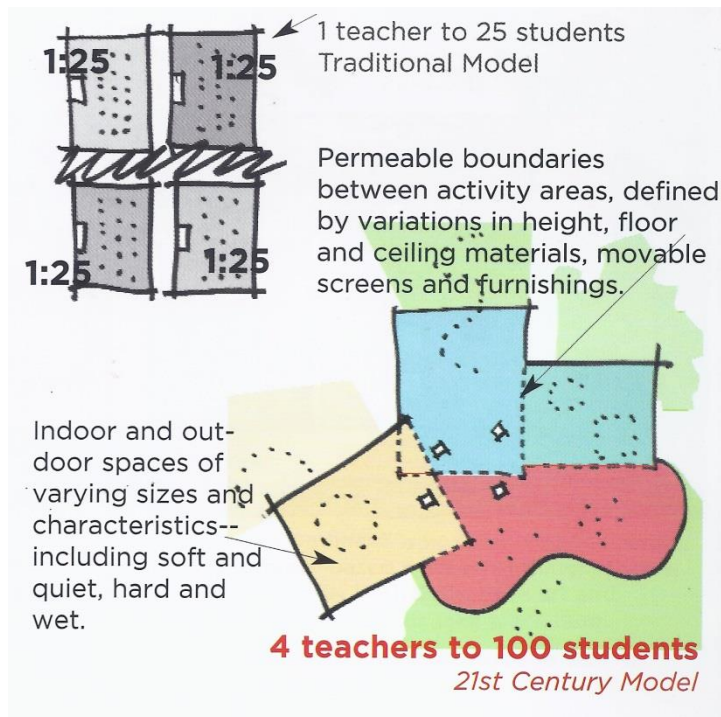
The pattern language for learning spaces is developed in a systematic manner to form 28 patterns. The patterns are placed in 6 categories, each category being representative of the primary purpose of the patterns in that category.

The patterns presented provide a view of learning environments that adhere to the concepts discussed in 2.4.2, 2.4.3 and 2.4.4 (namely Responsiveness, The Third Teacher and Community).

Currently the application of these patterns seems to be focused on the developed world, within resource-rich contexts. It is unclear whether or not the application would be as valid when dealing with the poverty and social ills present a context such as South Africa.

The methodology of pattern language, as a guide to the process of designing environments that enable childhood development, should be further explored. Perhaps some simplification of the patterns, to enable a more universal application, would lead to desired outcomes in South Africa.

2.4.5 Design Guidelines

The purpose of this study is to develop design guidelines for built children's environments in South Africa. The idea of developing these guidelines stems from my experience with design guidelines used in the UK. At the time, while employed at ELE (Effective Learning Environments, UK) we were asked to provide comments on a revised guideline that was being developed for the 0-3 age group. Design guidelines deal with the development of architecture but are not confined to the architectural

discipline. The aim of the Commission for Architecture and the Built Environment (CABE), now known as the Design Council, is to improve people's lives through quality design.

Quality of design is established by means of a multi-disciplinary approach that is people-centred, with experts reviewing and advising.. The scope of the Design Council embraces a broad range of issues and several publications are available dealing with the design of environments for children and learning spaces. The Publications include visual design guidelines, post-occupancy evaluations, inclusive design approaches, articles on empowering children in the process of design, and research-based documents around the issues of developing quality environments for children.

The *"Sure Start: Every building matters: A visual guide to designing Sure Start Children's Centres and other early years facilities and spaces."* (CABE: 2008) aim of this visual guide is to assist all stakeholders in the development of ECD centres providing for the age group of 0-5years, with the following aim in mind: "Using a mixture of practical advice and inspiring images, the aim of this guide is to show local authorities how to make best use of available monies, and deliver inspiring buildings that enhance family life, within challenging timescales."

The Sure Start document provides key information in a manner that is easy to understand and a clear graphic presentation of possibilities. The first aspect covered in the guide is a clear description of what a Children's Centre is, namely that it provides integrated services and quality early-learning for children less than 5 years (and their families). Ideally such a centre should serve a specific community that has been identified as disadvantaged.

The process outlined in the Guide recommends, as a first step, the establishing of a **Vision Statement.** Through development of this statement, key stakeholders can identify what the aims of the centre will be, based on the needs that have been identified. The guide provides key aspects to consider in the developing of a Vision Statement. See below, an extract of the document indicating aspects to consider:

– What are the key issues to think about?

Early years facilities including Sure Start Children's Centres are likely to differ in size, location, style and internal arrangement, but there are a number of key issues that must be addressed in order to meet the key objectives. These are described in the following five statements, and a number of questions are also provided to help start discussions.

A children's centre should:
Be inspiring to local children, their families and staff.

Think about the different ways a children's centre could enhance family life.

– How could it nurture children's imagination and build self-confidence?

– How might it dramatically improve the delivery of combined services?

– What would make it a stimulating place to work?

A children's centre should:
Be highly valued by the community that it serves.

Consider what would make a children's centre the heart of a neighbourhood.

– How might the wider community be involved in the design process?

– What would make local people look upon the centre with pride?

– How could it be used to raise awareness of valuable services such as health and Job Centre Plus?

A children's centre should:
Be welcoming, accessible and easy to use.

Imagine the different people that would benefit from a children's centre.

– What would make the building inviting to everyone?

– What needs do different users have, and how can these be accommodated?

– What would make the building easy to operate and move around in?

A children's centre should:
Be sustainable and respect the environment.

Reflect on the long-term responsibilities of creating a new building.

– How might rooms adapt to allow for a variety of uses, including health services?

– What is needed to deliver social, health and educational development?

– How could maintenance and running costs be minimised?

A children's centre should:
Be flexible, supportive and responsive to changing needs.

Consider how well-designed spaces might support different activities.

– How might rooms adapt to allow for a variety of uses?

– What is needed to deliver social and educational development?

– How might spaces encourage interaction between staff and parents?

– Where can reclaimed materials be used and which construction materials can be recycled?

Figure 27 Extract From Design Guideline: Towards a Vision Statement   **(CABE 2008: 10-11)**

The document provides the **community** that is involved with the project with information that furthers the development of a responsive design, as most teachers and parents would not have the experience in design to consider these aspects without prompting. It should be noted that these very simple prompts address many of the theoretical issues and concepts developed in the preceding sections of Chapter 2.

The Guide also provides readers with information on how to develop a **Project Brief**, and why it is important. Other information included considers key elements for creating a quality environment; in their words; 'Creating an Inspiring Building': Designing play spaces; Involving the Community; Making an Entrance; Respecting the Environment; Planning for Change. Each of these aspects is graphically explained, with examples from completed projects (as shown in the images below)
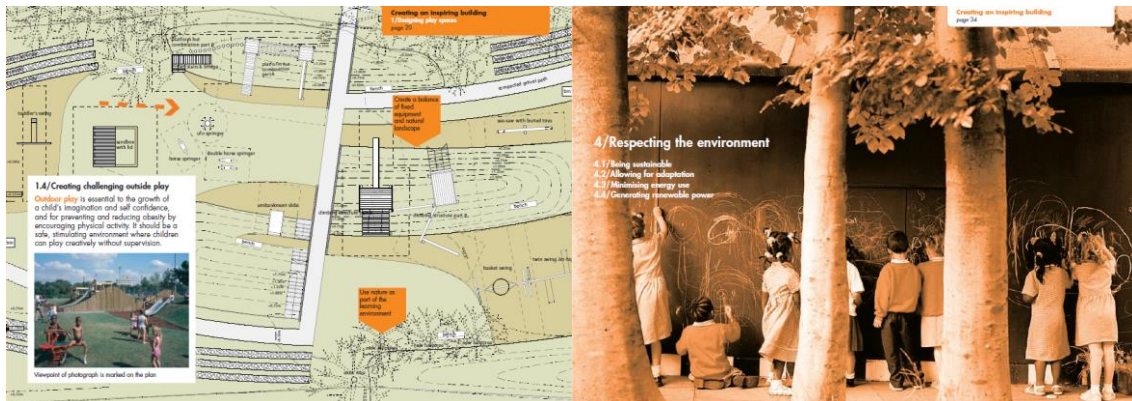
Figure 28 Extracts form Design Guideline: Visually presented concepts to consider in Design (CABE 2008: 20; 34)

The overriding qualities of the design are reduced to 10 principles, which are not prescriptive, but rather provide the seed for quality design.

What qualities should a Sure Start Children's Centre embody?
Think of a children's centre not as a building with walls, but as a container for life. Inspiring places are beautifully designed, well cared for and filled with joy. When a project is complete, the client and design team should be able to show how it embodies the following 10 qualities that can deepen and enhance the experience of families and staff alike.

1 Passionate ownership
Clients need to take ownership of the design from the outset, ensure the building looks and feels like an integral part of the community, and encourage staff and parent involvement.

2 Sustainable development
Projects should control the effects of the sun by using passive design principles to determine building form, siting and orientation, and consider the use of renewable energy technologies where budgets allow.

3 Location specific
Buildings should be responsive to their surroundings, work within the scale and grain of the neighbourhood, and capitalise on views of the natural environment.

4 Welcoming & inclusive
A children's centre should be welcoming to all people by having a friendly neighbourhood presence, clear identity and a well-located and inviting entrance.

5 Inspired & accessible
Interiors should be attractive and enhance everyday life, with sensible layouts that reduce circulation, aid wayfinding and allow effective supervision by staff.

6 Robust & changable
Projects should allow for future adaptation by identifying areas for later extensions, and grouping services to reduce the cost of reconfiguring the interior.

7 Well-proportioned & flexible
The layout of play space should allow a multitude of activities, be reconfigurable, and animated with natural light and thoughtful use of colour.

8 Accessible outdoors
Indoor play spaces should be directly linked to secure external environments that provide safe, stimulating learning opportunities for young children.

9 Effective workplaces
Staff accommodation should be spacious and well thought out, encourage collaboration between service providers, and allow for future expansion.

10 Smart storage
Storage space needs to be carefully defined by staff, integrated into the overall building concept, and allow children direct access where appropriate.

Figure 29 Extract from Design Guide: Overriding Qualities   (CABE 2009: 46-47)

A final section provides very important information relating both to Child Development and to design approaches and legislation. This kind of information, again, ensures quality as it provides a reference to cross- check during the design process, to ensure

that all areas of concern have been covered. Most of the information referred to below have been discussed in the preceding section of the Literature Review.

Environment 'affordance'

Childcare expert Harry Heft suggests that all environmental features should be considered in terms of the developmental activities they encourage in the young: a concept he calls 'affordance'.

A smooth flat surface encourages walking or running, while a soft spongy surface 'affords' lying down and relaxing. Similarly, a room full of light and shadows will stimulate children in a particular way, while a dark, warm place with soft furniture, lots of cushions and soft flooring is more calming and provides a suitable setting for storytelling, resting and sleeping.

Considered in this way, the atmosphere of each place within a nursery should offer developmental possibilities. Entrances, washrooms and circulation areas all have 'affordances' which can provide children with the opportunity to play in an imaginative way, if they are safe and accessible.

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[Ref. Heft, H. (1988) 'Affordances of children's environments: a functional approach to environmental description', Children's environment quarterly, vol. 5, no. 3, pp. 29–37.]

Symbolic spaces

Educational researcher Alison Clark has observed and recorded the way children spend their time in early years settings, and found that many youngsters identify with their environment in a symbolic way.

Surprisingly, features that might appear unimportant to adults actually form key elements of the nurturing environment for a child. Clark's examples of this included a bench where children kissed their parents goodbye, and a seat in the sick bay where they recovered from a fall, both of which were significant places that provided a strong sense of security and belonging.

Likewise, informal meeting spaces such as the cloakroom, and defined 'landmarks' such as the reception desk and notice board, were also important for children, helping them identify with a place and develop a sense of security.

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[Ref. Clark, A. (2006) 'Talking and listening to children', Children's Spaces. Edited by Mark Dudek, published Architectural Press.]

A family environment

In 1928, the respected British pioneer of nursery education Margaret McMillan alluded to the ideal early years environment as a 'garden city of children'. By this she meant that unlike a conventional school, a nursery should be designed as a set of small-scale buildings, set in a green landscape, each housing a family-sized group of children.

While it is not possible to follow all of McMillan's principles, a number of her ideas are still relevant today, for example, the notion that indoor activity spaces should open directly to the outdoors for providing run-in, run-out play. Also, her views on buildings can be interpreted as the need to design environments that have soft, child-orientated qualities, as opposed to being hard, over-sized and out of scale with the young people using them.

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Dudek, M, Kindergarten Architecture, 2001, SPON, pg 4

The curriculum and your designer

If a designer is creating a children's centre for the first time, they may not be aware that a specific early years curriculum exists, and that this affects the way space is used in a nursery. These requirements should be discussed at an early stage in the design process, as important learning experiences, such as those involving water, sand and construction, may require special floor finishes, built-in drainage or other careful detailing.

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[Ref. Curriculum Guidance for the Foundation Stage.]

Figure 30 Extract from Guideline: Food for Thought   **(CABE: 2009: 49).**

The importance of dens

Dens are hideaways: secret spaces that allow children to create and inhabit their own imaginary worlds. They provide safe environments in which they can challenge themselves, both mentally and physically.

'The den is the chrysalis out of which the butterfly is born.'
David Sobel, psychologist

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[Ref. Sobel, D, (1998) Mapmaking with Children – Sense of Place, Education for the Elementary Year. USA: Heinemann]

Outdoor play

Recent research has demonstrated the importance of access to external play for the development of young children. In a large study undertaken by the Faculty of Education at the University of Plymouth, Dr Sue Rogers has shown that the outdoor environment provides unique experiences for role-play and the social development of children. Conversely, Michael Shayer, Professor of Applied Psychology at King's College University of London, has established that a lack of experiential play is a core reason for the decline in children's cognitive ability.

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Early years legislation

When designing a children's centre it is important to remember that these buildings need to conform to existing legislation and standards such as the OFSTED regulations and the Early Years Foundation Stage (EYFS).

The EYFS refers to the phase of learning and development starting from birth and finishing at the end of the academic year when a child turns five. From September 2008, it will be applied across all registered early years settings, including maintained and independent schools. This will ensure that all children have access to an integrated learning and care experience, and that parents will receive a consistent quality of service whichever setting their child attends.

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Play space guidance

A number of government publications already exists that relate specifically to early years buildings, and these need to be taken into account during the design stages. Of particular relevance is the former ODPM document 'Developing Accessible Play Space – a Good Practice Guide' published in 2003.

The EYFS also asks for time outside and knowledge and understanding of the world, including the opportunity to 'encounter creatures in their... natural environments'.

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For further information see www.communities.gov.uk

Figure 31 Extract from Design guide: Food for thought.   **(CABE 2009: 50)**

The Sure Start Design Guide is an easily-understood document that "brings together" the complexity of developing good quality environments for children and their families. The information is presented in an accessible way, making architectural thinking available to all stakeholders involved in the development of an environment for children.

It should be noted that the Design Guide discussed above does not provide any detailed information regarding regulations and legislation governing the provision in terms of educational practices or building regulations. A reference section is provided that includes all relevant information that should be referred to.

A similar document is provided by the South Australian Department of Education and Child Services, *Early Childhood Facilities (Birth to Age 8) Design Standards and Guidelines.* (As indicated in the title the document is presented by a government department and aims at controlling standards as well as promoting quality implementation. The information provided is specific and detailed, including all aspects that could be included in an integrated Early Childhood Centre in the region, given both urban and rural contexts. The document is presented as a "kit" with many parts, designated to cater for specific facilities in terms of age range, special educational needs, health, community, aftercare and administration. Accommodation schedules with floor areas are included, as well as detailed descriptions of the quality of spaces that are required. Photographs are included to provide examples of similar such spaces. A section on building elements provides detailed information on aspects like floor finishes, walls etc. The document provides an introduction to the pedagogical system that is currently in place in the region under consideration, as a background to how the building could best support the appropriate learning method. The Specific Principles informing the design are based on the Reggio Emalia system, with a focus on the design of an outdoor environment that functions as an explorative, stimulating and multi-sensory learning environment.

The document is very detailed and provides a checklist at the end to ensure compliance with all of the requirements. The final page of the document provides recommendations for designing learning spaces. The document is comprehensive and will assist in developing quality environments; however it is also lengthy and repetitive, and seems to be aimed at a Design or Project Manager. The Clients and other stakeholders may find the document tedious to work through and apply.

The example presented by the Design Council lends itself to a wide audience as it is principle-based and successful in providing a broad range of information in a visually stimulating manner. This method will be more successful in generating a responsive and community-orientated design process.

2.4 CONCLUSION

The theoretical base that was established through the research establishes that architecture is purposeful behaviour. The Primary purpose of architecture is defined as:

The process of creating places for people to dwell.

The understanding of dwelling was further explored in terms of the concept of Place and Experience firstly universally and the in more detail in terms of the child. The review of childhood development theories concluded the notion of a slow process that is related to the stimulus provided. The role of the physical environment as providing a context for both protection and exploration is explained with in various aspects of pedagogy as well as systems thinking. Within the recognition of development as a slow process we also had to recognise the distance that develops simultaneously between the child born and the eventual adult. The importance of Nature is highlighted and related to learning through Play.

With the more detailed understanding the child and how she (he) relates to environment were the also related to the design of the environment. Three concepts were identified as the drivers towards the making of quality spaces for the care, education and development of children, namely:

Responsiveness, Third Teacher and **Community.**

Each of these concepts brings together aspects of architectural design and the process of developing architecture that should inform the case analysis and potentially the proposed design guidelines for the design of children's spaces in South Africa.

The final part of the literature review considers the potential of The Pattern Language as a methodology for a design guide as well as establishing confirmations of the key concepts in the seminal work "A Pattern Language" (Alexander: 1977). The possible content of a design guide is explored in the "Sure Start every building matters" document that I am familiar with from my work experience in the UK.

We can conclude that the possibility of connecting the making of architecture with childhood development in the South African context has the potential to "create places for children to dwell." It is when a child finds her (his) sense of place that she (he) can explore towards becoming a well-developed adult that will bring value to society.

CHAPTER 3

POLICY ANALYSIS

3.1   INTRODUCTION

The condition of poverty has been recognised globally, and in South Africa, as going hand in hand with various health issues and social ills. One of the means of addressing these issues is by acknowledging the function of ECD in identifying and supporting vulnerable children, and providing them with safe and healthy environments in which they can develop their optimal potential.

ECD Centres have the potential to address issues of poverty by ensuring that children are able to develop and grow and ultimately become productive members of their communities, but it is an unfortunate truth that the condition of poverty is suffocating the attempts to breathe new life into ECD systems:

A few years ago I visited a Pre-school in a rural area situated near the small village of Creighton. The pre-school in that area was attended by 70 children between the ages of 2 and 6 years. A number of the children were included in a Gr R programme. The teaching staff consisted of 2 teachers who were still in the process of completing their training. The pre-school was accommodated in an old church hall surrounded by a wire fence, with some old outdoor play equipment in front of the building. The roof was leaking and some of the mud walls were in the process of crumbling. The only toilets available had been built as pit latrines and had gaping holes around the seats, posing a danger to the smaller children of falling into the hole. No drinking water was available on the site; the closest water was about 50m lower down where a roundabout water pump had been installed. Security was a major concern as they had experienced a break-in and loss of equipment in the past. An American aid organisation had provided the centre with some assistance, but this was limited to plastic stools and toys. The children all walked to the school without adults to accompany them, and even the smallest children would walk accompanied only by their siblings. The village was spread across a large area, resulting in very limited interaction between the parents and teachers and caregivers at the school conceive of a possible solution to alleviating the impact of poverty, considering the poor conditions provided by the built environment, and the large ratio of children to each teacher. Children cannot possibly achieve their potential in such an environment, and are therefore denied the opportunity to become productive members of society capable of sustaining themselves and their families.

3.2   UNITED NATIONS: 'THE RIGHTS OF A CHILD'

The United Nations Convention of 1989 developed 54 Articles that describes the International standards for the rights of the child. For the research eight of these articles were identified to be applied directly to the ECD sector in terms of Health, Education and Social development.

Article 24 refers to **Health**, Article 28 considers **Education** whilst Article 29 elaborates to include Educational **Goals**. Article 31 establishes the Child's right to **Play** and Article 17 considers access to information and specifically to **children's books**.

In Article 3 the **best interest of the child** is confirmed while Article 12 the **respect of the views** of children is included.

Article 18 establishes that the Government need to **support the Parents** of Children.

And Article 39 deals with rehabilitation of Child Victims considering the key elements of **restoration of health, self-respect and dignity**.

A summary of the rights of the Child is taken up in Appendices II.

The rights of children in South Africa are based on these rights and in some instances deal with contextual issues like the HIV epidemic in more detail. The Child's Right to Play in the South African policies has been diminished to form part of the right to growth and development. This position of Play should raise concern in terms of the how children are viewed in our society and to the implementation of improvements in early childhood development.

The Union of International Architects through its UIA Built Environment Education Network supports these principles established in The Rights of the Child. The primary focus of the UIA to enable childhood development that prepares children holistically to live as individuals in society within the underlying ideals the Charter of the United Nations: "particular in the spirit of peace, dignity, tolerance, freedom, equality and solidarity . . . Taking due account of the importance of the traditions and cultural values of each people" (UIA: 2016)

The complete statement by UIA Built Environment Education Network is taken up in Appendices III

The research of Architecture and Childhood development has to be aligned with the Rights and the UIA focus on Childhood development

3.2.1 Universal Approaches to ECD

The UN convention on the rights of the child spear-headed a wide range of initiatives in terms of early childhood development. The aspects which are the most relevant to this research fall into the categories of urbanisation and early childhood education. Other important fields related to these are health and poverty.

Early Childhood Education: A Global Scenario (2010) is a study conducted by the Education International ECE Task Force to impact on the policy-making toward implementation of quality programmes and activities in Early Childhood Education.

The study refers to early childhood education in a very broad sense and the ECD services which have been included in South African policies (which adopt an holistic developmental view) are being considered. The provision of ECE (early childhood education) is also considered for its social impact on women and parents in general. This approach is supported by UNESCO, which argues that "early childhood programmes should have as their core objective the wellbeing and holistic development of children's capacities." (UNESCO: 2007)

> "early childhood is the most critical period for cognitive and social development, the acquisition of languages and early literacy. Children are active learners from birth, and the first years are vital. Early childhood education (ECE) should be recognized as a first step of basic education, as a fully integrated sector within national education systems. Provision should be universally accessible and free for all children […] High quality ECE provides the foundation for life-long learning and stimulates children's social, emotional, physical, cognitive and linguistic development" (Education International 2006).

The report concluded that the different socio-cultural and socio-economic and political contexts have a vast impact on the policies and implementation of ECE practices across the globe. Despite these differences the concerns raised by ECE advocates seem to be universal, dealing with "universal access for children and families, adequate training and qualifications of ECE staff, fair and equal working conditions and salaries for teaching staff, well-structured ECE governance, quality of ECE services, and including *'care'* as an integral part of ECE" (ECE A Global scenario: 2006: 16)

The findings concur with the South African conditions in most respects dealing with the mix of providers and funders; the provision of 0-3 which is predominantly private, which would exclude the poorest of the population; the vulnerable group in the developing countries do not have access to quality services; poor and rural children as well as those with disabilities are affected most; quality of teaching staff is generally low; conditions of service for ECE staff is generally lower than the rest of the education sector; the quality of urban services are generally higher than that provided in the rural areas.

The findings do not specifically refer to the quality of the physical environment and how this may impact on the provision of early childhood education. Having said this, the lack of resources and poor infrastructure provision is noted as a key factor impacting on the quality and access to ECE.

The need for a differentiation between child care and early childhood education is raised as a concern in some of the countries included in the study. Related to this concern is the adult to child ratios. In the child care scenario the need for individual attention and qualified staff is negated. The acceptable quality of the environment would be lower too.

The Association for Childhood Education International (ACEI) has developed: The Global Guidelines Assessment (GGA): An Early Childhood Care and Education Program Assessment (2011), in an attempt to improve quality in all areas of ECD provision internationally with a universally appropriate scale. The assessment scale was developed through extensive consultation with early childhood professionals, across 27 countries. The intention of the document is to enable the assessment of quality in terms of the following aspects:

- Environment and Physical Space,

- Curriculum Content and Pedagogy,

- Early Childhood Educators and Caregivers,

- Partnerships With Families and Communities, and

- Young Children with Special Needs.

The first category dealing with the Environment and Physical Space is of concern to this research. The aspects considered in this section relate to safety both in a physical sense and psychologically. Physical safety can be described as the tangible elements of the environment that should be safe and free from any hazards to enable the child's development. The psychological safety deals with the sense of belonging and well-being. A further requirement is for the environment to be inclusive of diversity of all forms and of any special needs. The resources are described as contextually-related in terms of culture and tradition. As an overarching quality the environment "should empower the child by providing opportunities for exploration, play, and practicing life skills." (ACEI: 2011: 7) Within the pro-forma of the Scale, a subcategory for Stimulating Environment is also included, dealing specifically with the potential for exploration.

The key requirements for quality of the environment provide a confirmation of the theoretical criteria that were established in Chapter 2 namely the concept of Place (**Responsiveness**), as well as the notion of Learning through Play (**Third Teacher**). The participation of parents is also noted with specific reference to ownership and integration (**Community**).

The participation and community that is developed is practiced in various ECD settings internationally. Community can be extended in various ways, as can be seen in the UK in the provision of integrated services for ECD. The *Sure Start Children's Centres* that were implemented in the UK are a good example of integration where all the services related to early childhood are combined on one campus. The design guidelines of the *Sure Start Centres* were included in the preceding section 2.4.5; and recommend providing Adult Education at ECD centres or providing centres that facilitate the playgroups and educational care of young children which also provide support and skills-training for young mothers. These facilities form the bases for social workers, health care workers and other family related practitioners. The *Pengreen* ECD centre is

an excellent example of this kind of facility and is located in a disadvantaged area of the UK.

The proposed intention is for the ECD centre to become a community centre on a smaller scale, serving those families within walking distance. Other examples include the combination of Health Clinics with Primary Schools, which allows for greater community involvement and contact with the parents, through two agencies that could impact on improving of parenting practices and adult literacy.
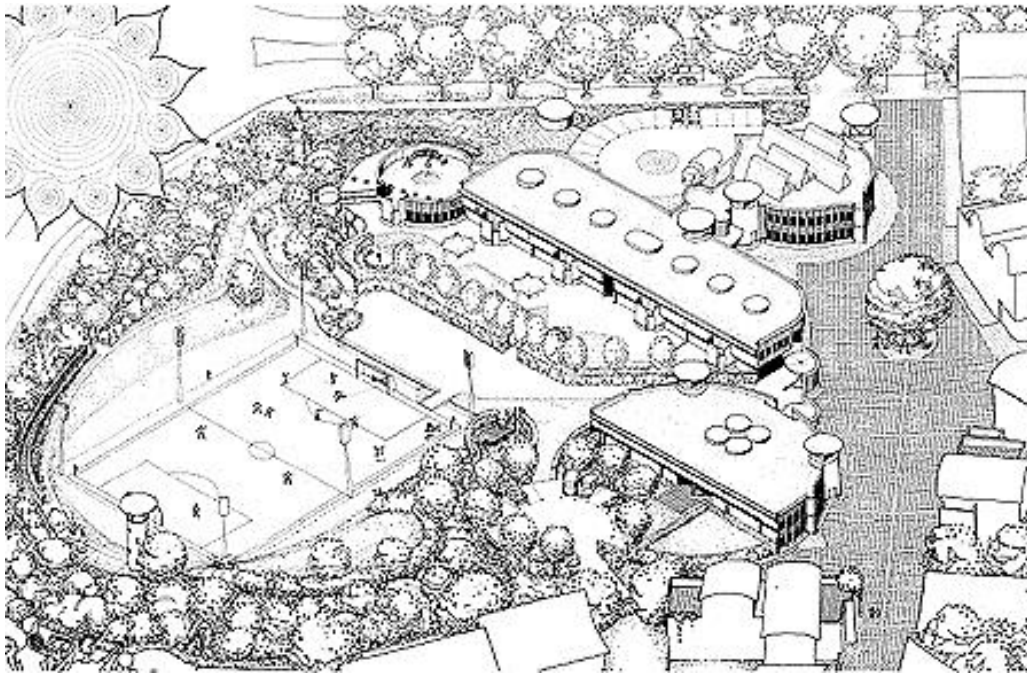
Figure 32 Greenwich Millennium Primary School with Health Clinic on same campus (

In terms of the built environment and children in the urban context, an increased awareness of the importance of childhood development is apparent. The recently published *"Building Child Friendly Cities: A Framework for Action"* by UNICEF provides a comprehensive approach to improving the quality of environments that affect children and their development. Although the document considers children specifically, it should be considered that when an environment provides quality care for children it will also provide equal quality services for adults. The

Figure 33 Pen Green Early Excellence Centre, UK   **(CABE 2008:49)**

CFC (child friendly cities) movement is rooted in the UN convention of the Rights of the Child of 1989, with the primary objective of "building genuinely Child Friendly Cities." (BCFC 2004: 2) Fundamental to the strategy is that it does not provide a model city, but provides strategies for inclusive processes and a broad framework that impacts on government agencies and policy makers.

An important aspect that is underlined by The Rights of the Child, included in the approach is impact assessment and evaluation by children.

> "Practical demonstrations of the importance and usefulness of involving children actively in community development can be highly influential in developing political sympathy for child-friendly policies, and these demonstrations are most likely to happen at a local or neighbourhood level: through involvement of children in developing play facilities; child-friendly design of new housing, safe water or hygiene projects, traffic and transport schemes; in schools, consultations with children over curriculum and behaviour policies." (BCFC 2004: 4)

The document provides a list of justifications for these kinds of inclusive approaches. Underlying the need for justification are the perceptions of the role of the child in society as being subject to authoritarian approaches that is not in line with Human Rights, let alone Children's Rights. The CFC strategies are based on fundamentals taken from the Rights of the Child:

- Non-discrimination (article 2) - a Child Friendly City is friendly and inclusive for all children.

- Best interests (article 3) - a Child Friendly City ensures that the best interests of the child are a primary consideration "in all actions concerning children".

- Every child's right to life and maximum development (article 6) - a Child Friendly City seeks to maximise the survival and development of all its children – providing the optimal conditions for childhood, for the child's life now.

- Listening to children and respecting their views (article 12) - Children are seen and heard in a Child Friendly City. Their active participation as citizens and rights-holders is promoted.

(BCFC 2004: 7)

The intentions developed in the DCFC strategies are related to the Growing Up in Cities project of UNESCO as documented in *Don't just listen, do something!* This focused on participative action research taking place in cities globally, including in Durban, South Africa. This research indicates the value of participatory processes where children are enabled to understand their own needs and thereby allow for child-centred urban

regeneration to take place. It can be noted that the benefit of the process as documented indicates the childhood development value that is inherent in the methodology. The researcher who worked in South Africa states:

> "children who have taken part in GUIC projects speak of intrinsic, vital and long-term gains such as enhanced personal capacity and a heightened awareness of the environment and their neighbourhoods." (Chawla, et.al. 2005: 61)

The success of the projects in South Africa is attributed to the difference between hearing and listening, where the latter requires respect which enables action.

The research includes children from the early years to the teens. In some instances the children lead a trip through their neighbourhood, while in others the children photograph the environment allowing a view into their world.

The initiatives discussed in terms of children and the urban environment provide for methodologies that will be relevant in the development of ECD environments that are **responsive**, have the potential to be the **Third Teacher** and enable building of the **community**.

3.2.2   ECD and the Global South

Integrated Approach

> "The integrated approach to ECD is essential first and foremost because holistic child development includes all areas of growth: perceptual, physical, mental, linguistic, emotional and social. It seeks to ensure that each child will be healthy, well nourished, and live in a clean and safe environment. The integrated approach fundamentally seeks to build cross-sectoral co-ordination systems, promote programme innovation, overcome gaps in knowledge, services and resources, and build cost-effective programmes that are culturally appropriate."(Vargas-Barón 2005: 7)

The Integrated approach developed with the aim of comprehensive Early Childhood Development specifically within the challenging situations in the Global South but is as appropriate at targeting the development of children within any nation. The first implementation of this approach was established in 1972 in disadvantaged areas of Columbia. The key principle of the approach is to provide ECD in all areas that impact on child development within a community framework. The principles of the integrated approach can be translated to the key concepts developed in this research; Responsiveness, the Third Teacher and Community.

One of the major concerns of the Global South is poverty and its relationship to urbanisation. In this regard an intervention in Guatemala City, South America documents the positive impact of an architectural/landscape design project that was carried as part of a support programme for the families settled at a waste dump. (Winterbottom: 2007) The families live in severe poverty and are exposed to health hazards and social ills on a daily basis. Specifically the children were left to wander while their parent takes the task of waste picking. The intervention is based on a consultative process and the theories of child development within a supportive physical environment. A specific focus is learning through play and the relationship to nature.

The design process included workshops with all the possible end users including the children. This has established a sense of ownership and stewardship. The gardens that were established as part of a school have become a community oasis, where families can benefit from the therapeutic value of nature. The park also provided for re-establishing family relations:

> "When the park concept was described as a garden for play where the children would find butterflies and birds and be able to run and explore, the parents became very supportive and further engaged in the process. Many of the parents came from rural environments and the play garden concept connected them to memories of nature in their childhood that they wanted to recapture and share with their children."
> (Winterbottom 2007: 450)

The project described relates to Responsiveness as it responds to the specific needs in terms of social, cultural, educational and health of the children and their families. The process and aim of the project is inclusive and occurred through a consultative process allowing a community to be re-established. The gardens are described as therapeutic and allow for exploration as defined in the concept of Third Teacher.

The concept of early childhood development is relatively new as it has developed only during the 1900's as a scientifically based , specifically related to African Traditions.

Children in Africa (Garcia et.al: 2008)
Children were traditionally valued in the African society. The child provided eligibility to a marriage and both men and women wished to have children. A barren woman was frowned upon. Children were seen as important in ensuring that elderly parents would be provided for.

The learning of children formed part of the daily life of the people. They were trained in methods by which they could contribute to the sustainability of the people. From the age of seven the child would be given specific tasks and responsibilities as part of the family. The training was gender specific. Cultural heritage formed part of growing up.

Knowledge was passed on from elders to the young in various forms namely storytelling, cultural rituals and daily activities.

This valuable system has slowly deteriorated with the urbanisation and westernisation of the people in Africa. The historical practice has almost completely lost its value as traditional skills are no longer adequate to provide an education and an income in the current African society.

The notion of education outside of the family setting arrived with missionaries and colonisation. They established schools which primarily focused on literacy, numeracy and establishing moral values. The underlying principles of these education systems were both Anglo and European. After the independence of most African countries the education system was continued on these bases. Most of the countries in Sub-Saharan Africa aimed to increase the education level of their nations both of adults and children.

The disciplines of childhood development and modern education practices are intertwined in development in Western Society. Africa has adopted these education systems without realising the connection with childhood development practices. The need for stimulation and exploration through play did not form part of traditional African practice.

The situation in South Africa is similar with colonisation attributing to the establishment of the school system. During the time before democracy in South Africa education was provided but students were marginalised by the apartheid system. A determined effort is taking place to improve equality in education in South Africa, to attempt to address problem issues in society resulting from substandard education systems.

3.3 EARLY CHILDHOOD DEVELOPMENT IN SOUTH AFRICA

> "There are some 5.3 million children under five years of age in South Africa, close to a million in each yearly age group. Of these, some 65 percent live in poverty as determined by the fact that they qualify for the Child Support Grant."
> (HSRC 2014)

The term ECD broadly refers to how a child develops from conception through birth to the age of 8 or 9. In South Africa the term ECD as described in policy and other legislative documents tends to be focused on the 0-4 age range, to exclude the formal school years namely, Gr R, Gr 1 – 3. The range is further divided into 0-2, 2-3 and 3-4. The general approach to the care for children under the age of 4 years is home-based or private day-care facilities. Childminding is also a common practice where up to 5

children are taken care of in a home setting. Very limited government facilities are available for the different age ranges. The concept of day-care or child minding is somewhat removed from the more comprehensive meaning of Early Child Development or as discussed in 3.2 as Early Childhood Education.

Most parents in South Africa, in line with those in countries around the world, consider the notion of ECD only once they have children, and then usually only if the mother has to return to work. In some cases the babies are barely a few days to a week old before placed in ECD facility of some form. The need to return to the workforce is perpetuated by the cycle of poverty. Many children are looked after within the family support network of the parent, most often by the grandmother.

The statistics indicate that only a small percentage of children under the age of two receive ECD interventions. The statistics of children attending ECD centres are not always a true reflection of the situation as many childcare facilities are not registered. A further concern is the lack of quality childhood development provisions in these facilities.

Andy Clark from Botshabelo Urban Kids Educentre in Midrand, Gauteng, describes the routine of the children as "waiting".

> "They wait for snack time, they wait for toilet time, they wait for sleep time, they wait for their mothers to collect them." (www. Botshabelo.co.za)

The images provided are of large groups of little children just sitting in a room for most of the day. The carers do not have the skills to know how to provide stimulation and the parents cannot afford any better care. Her organisation has implemented a programme to educate the carers at ECD centres, in the basics of childhood development, they are providing play equipment, and improving the physical environment. The primary reason provided for the intervention is to break the cycle of poverty. The women who have received the training acknowledge that they did not know how to provide anything better, for the simple reason that they never received anything better. (www.botshabelo.co.za)

The value of early childhood development seems to have been acknowledged within the Government in South Africa and certainly for some time by a wide range of Non-government organisations which work towards improving the conditions of children and their caregivers in poor and vulnerable communities. The NGO provision in South Africa is well-established and has a good track record. The Government agencies rely on the NGO providers to assist in the provision of necessary services. Site one of the Case study provides an example of an NGO that were approached to assist when an existing crèche faced closure.

3.3.1 Integrated Approach

Initiatives for the development ECD have been in process since 1996 (democratic SA), and the implementation of the GR R (reception year) is now compulsory to prepare children for formal schooling. This was followed by the National Integrated Development Plan for ECD in 2005 which aimed at combining the social, health and education aspects of ECD. The Integrated Plan recognises the possible impact of wide implementation of ECD throughout the Urban and Rural communities of South Africa, to establish development not only of the child, but of society as a whole. One of the primary aims of ECD was set to eradicate poverty.

Through the Integrated ECD plan the targeted development of babies and young children has been mapped as a framework, or measure, in the *National Early Learning And Development Standards For Children Birth To Four Years* (NELDS: 2009) developed by the Department of Basic Education in collaboration with UNESCO. This document considers the characteristics of a Child from 0-4, Strategies to enable positive growth and development, desired results, assessments and some pointers to develop programmes. The developmental milestones documented in the NELDS document correspond with internationally recognised Early Childhood Development Practices and the Global ECD Assessment Scale (ACEI: 2011). Extracts of the NELDS document are included in Appendix V.

Challenges that are recognised through the *Diagnostic Review of Early Childhood Development* (2012) to establish the effective implementation of the plan relate predominantly to the resources:
- trained teachers and carers to work with the children,
- suitable buildings and equipment
- educational toys etc.
- a network to control and evaluate the implementation
- Funding and management of funds

A further concern that compounds the lack of implementation is caused by the independent operations of the three departments involved in ECD, namely Department of Health, Department of Education and Department of Social Development. Communication and integration on the ground is limited. This lack of integration is evident in the contradictions in terms of minimum standards required by the different department. The development of a single policy document that could be implemented throughout South Africa has the potential to resolve many of these issues.

The first Development plan was written in 2005 as a 5-year plan, until 2010, and a revised plan was published in 2012/13. The revised plan aimed to address the most apparent shortcoming of the initial plan. The most prominent of these is the drive to

include an additional year of compulsory schooling before Gr R. This will allow the CAPs system to be included into the early years. The proposal is to allow the two years for compulsory pre-school (Gr R and Gr RR) to be provided by schools as well as by NGO's and private service providers. The quality of these programs will need to be controlled through The Department of Education.

Both these development plans include no specific reference to any architectural quality or specific requirements for the buildings and surrounding play areas. However the NELDS (2009) document refers to developmental milestones and ways to achieve these which certainly requires a specific quality built environment linked to the natural environment.

3.3.2 ECD and Grade R

Results from a PhD research study (Lenyai: 2006) provided evidence that the implementation of Gr R alone was not able to achieve the desired results of providing children with a better chance of achieving their potential at School. It has now been recognised that the interventions required should be as early as possible. The age range of 0-3 years is when the most impact on the development of a child can be established. This is the reason why this study focuses only 0-4.

The implementation of ECD in South Africa and KZN looks to be haphazard. More successful provision is being made by NGO interventions than that provided by the Government. This is also evident in the Annual ECD conferences, which focus on knowledge building, and are largely supported by NGO's.

The 0-2 year group requires interventions that facilitate the training of parents and grandparents in how to care for the baby at birth, but also before birth by taking care of the unborn child, specifically in terms of the mother's health.

This then extends to providing ECD for young babies to allow mothers to return to work (eliminating poverty) Refer to NELDS to emphasis the kind of care required.

The question of African childhood development versus western practices could be considered.

It should be acknowledged that within the traditional African Culture a system of childhood development did exist. This system would be appropriate for the lifestyle and socio/cultural practices that was relevant to traditional settlements. However it should be recognised that South Africa as a developing nation with access to many western practices and lifestyle choices and educational expectations requires new childhood development practices that would be relevant to the future of these children.

A study that was conducted in Cape Province (HRSC: 2010) to establish the quality of facilities and programmes for young children in both Rural and Urban settings, provide evidence that the quality of the built environment are not adequate and conducive to

promote development. The report points out that the spaces for younger children (0-4) are no different from those provided for Primary School children. This emphasises the lack of understanding of how the architecture could provide a positive environment.

The number of children per class seems often to be too high to provide the required individual contact between adult and child. This is further aggravated by the minimum floor areas both indoors and outside that are well below the area ratios of other countries: Australia: play area 3.25m2 outdoor play area min 7m2- max.9.35m2 per child.

Considering that South Africa does not have a lack of space it seems unnecessary to keep the spaces small. The outdoor spaces are specifically required to allow for gross motor activity. Over-use of the outdoor spaces or a garden area causes the vegetation to be trampled and the grass to disappear into dust.

The first 1000 days of a child's life are recognised as the most important stage to have a lasting impact on development. These equate to the 0-2 year old group. These children are too often not in contact with any ECD programme. The parents or family are seen as the primary influences on development. These parents or relatives often do not have the necessary skill or resources to make an impact as they never received stimulation as young children. The children most affected are those impacted by poverty, living in rural areas, and children with disabilities.

ECD in South Africa is aligned to international standards. (Universal Early Childhood Development)
These standards consider a specific curriculum as laid out in the NELDS documents for 0-5 and the CAPS curriculum for 5-7. The implementation of the curriculum can only be successful when the contextual issues and the physical environments form a positive background.
The provisions for ECD that do exist are mostly provided by NGO's and often require payment of fees by the parents. This system excludes the poor who do not have the means to pay for the service and perpetuates the cycle of poverty. The majority of facilities focus on 3-4 year old children in preparation for more formal schooling, provided in Gr R. Through this focus on 3-4 and 5-6 the first 1000 days are missed.

The case studies include NGO's which provide ECD facilities for the 0-2 age range.

A major concern is that the ECD Centres that are available do not provide a quality environment or quality care for the children who attend them. This situation negates the purpose of providing the service. The lack of quality is exacerbated by inadequate training of caregivers and a lack of ability to provide a stimulating play-based care system. The quality of the physical environment may also be poor with large numbers of children attending in a limited area.

In the case Andy Clark discussed above, the routine of the children is described as "waiting." "They wait for snack time, they wait for toilet time, they wait for sleep time, they wait for their mothers to collect them." The images provided are of large groups of little children just sitting in a room for most of the day. The carers do not have the skills to know how to provide stimulation and the parents cannot afford any better care. Her organisation has implemented a programme to educate the carers at ECD centre in the basics of child development. They are providing play equipment and they are improving the physical environment. The primary reason provided for the intervention is to break the cycle of poverty. The women who have received the training acknowledge that they did not know how to provide anything better for the simple reason that they never received anything better. (www.botshabelo.co.za)

Figure 34 Botshabelo carer training: Learning to play outside   source: www.botchabelo.co.za
Figure 35 Botshabelo carer training: small construction workshop   source:www.botchabelo.co.za

The focus in Primary education was first addressed by the implementation of the Gr R (reception year) which is focused at preparing the 5-6 year old child for Gr 1. Early Childhood learning cannot be removed from the health and social development of children, specifically not whilst those in most desperate need of services are the poor, orphaned, HIV-affected and children with disabilities. The government has established an integrated development plan in line with International Best Practice to bring all these aspects into one sphere. The implementation of such an idea would suggest that the places (buildings) that provide for ECD should be established in a manner that support this integrated approach.

ECD can be provided in a building that includes facilities for health care workers, for the social needs of the community as well as for early childhood learning. Within such a framework the opportunity exists to cater for both 0-2 year olds, 3-4 year olds, and as their parents. This idea is not new as it has already been attempted in some community centres in KZN and on a large scale in the UK.

In terms of resources the notion of shared resources provides for a more sustainable establishment.

It is important to remember that ECD is not only education in preparation for school, but also preparation for life. This is where quality care at ECD centres becomes most evident.

There are two traditional functions provided by ECD facilities. The first is to provide day care for children whose mothers have to return to work. The second provides the focus of extending the development of children. In South Africa at the high income end the latter is more common and for the middle income the first is a requirement. The focus from the government is to provide for both scenarios to all children; allowing parents/carers to continue with work outside the home and for children to be extended in terms of educational development.

At the lower end of the scale the quality of the care and opportunities for educational development may well be questioned. Factors which impact on the quality are: numbers of children per group; adult to child ratio; experience and qualifications of teachers; quality of the physical environment; etc.

3.4 CONCLUSION

Within the volumes of literature found concerning the subject of Early Childhood Development, it was evident that the setting or physical environment of ECD Centres are considered only as an adjunct to the other services provided. The policy documents do refer to safety and to quality but actual standards are not available to ensure that the children are afforded the opportunity for optimal development.

It is evident that the United Nations Convention of The Right of the Child has provided a new chapter in the approach to children and childhood development. It is also evident that the process of change for most of the children specifically in Africa is very slow.

The Integrated provision of ECD has become the ideal method to reach the children in vulnerable communities with the potential to impact on the mothers and families. The evidence indicates that the success rate of the South African Integrated plan for ECD is not what was intended. The implementation of the integrated ECD development plan in South Africa will become a reality when the integration is thoroughly applied working in a bottom up approach. The methodology suggested relates to the consultative methodologies as and proposed in the Sure Start design guide, as well as the preceding section relating to the Guatemala project.

CHAPTER 4

CASE STUDIES

4.1   INTRODUCTION

The key research question has been formulated as: "How can architectural design provide nurturing and stimulating environments that influence the care, education and development of children between the ages of 0-6 in the province of Kwa-Zulu Natal, South Africa?"

This question leads to an investigation of various educational environments to establish whether or not they can be defined as nurturing and stimulating for children. Through the theoretical background and literature review, it was established that the environments need to be experienced as Place. The architectural concept of "dwelling" is only possible within Place (rather than a mere building). A further essential component of Places for children is that they enable Play, due to children's exploratory nature and their natural whole body experience of their world.

The case-studies are designed to measure the degree in which selected environments succeed in providing children with Places "to dwell".

The previous chapter (relating to an investigation of the situation of ECDs in South Africa as defined by the various policies and reviews that have been developed) requires that the case-study include sites that provide a variety of contexts and development processes.

4.1.1   JUSTIFICATION OF CASE STUDIES

The case studies objectives were to test and validate information and key concepts developed in the literature review. In the first instance the aim was to find suitable example of where architects had provided a design for a children's environment that was aimed to impact positively on the development of children. The reason for these choices, rather than selecting examples without any intention beyond pragmatic and economic requirements, was to test whether the original design intentions of the architect have proved successful. The decision was also based on research finding as set out in the ECD Report of 2014 and on two research documents that included specific reference to the environment. A survey of existing ECD centres and Gr R facilities conducted by the Western Cape identifying the quality of the built environment in most settings as poor, concluded that poor environmental settings could impact negatively on the ability of the centre to provide quality care and education.

A further aspect that developed during the case analysis is concerned with the implementation of legislation, along with an attempt to implement a consultative design process to enable a responsive design and develop community,(as discussed in the theoretical sections of Chapter 2).

The case studies include a review of four architecturally designed projects that provide for the care and education of children between the ages of 0-6, each one providing a

different view of the question. The first three sites were all recognised (through peer review) by the Kwa-Zulu Natal Institute of Architecture. The final site provides an opportunity to analyse a project during its design phase, and with my consultative input is an attempt to implement research outcomes.

The procedures for each of the sites were conducted in a manner most suited to the specific scenarios. For example, the author was not familiar with the architects in only one of the centre. This was to the advantage of the research as the author had an overall understanding of the general approach, architectural focus and design process of the architects. In these instances it was much easier to obtain the required information and to communicate via email or telephone conversations. The author did not know the architect for site one, Michelle Quarmby, prior to our interaction through the research.

All of my visits to the ECD's were carried out in company with either the manager or teacher in charge of the section being studied. These took the form of unstructured interviews where an opportunity was provided for the teachers/manager to talk about the ECD, the building and the teaching practices as well as how the children interacted with their environment. This open discussion allowed the interviewee to feel more settled as control of the discussion was in their hands. My questioning was based on themes/topics rather than on specific questions in order to respond to the diverse settings and the different approaches of the teachers. Emphasis was placed on understanding the teachers' backgrounds and experiences prior to working at each site as this naturally impacted on their experience of the environment. In all the cases it provided a glimpse of how they would perceive the research and respond to the questions.

Themes for the interviews relate to primary concepts of a purposeful architecture that provides quality through the concept of dwelling and encourage exploration. The concepts translate into architecture in terms of the following underlying drivers:

- Responsiveness

- Third Teacher

- Community

Observations were focused, firstly, on how the children seemed to respond to their environment and, secondly how the teaching practices (or curriculum) related to the environment. Observation of the children was conducted over a short time period, with the opportunity to ask questions about specific features or specific behaviour. The children were observed in the classroom settings as well in outdoor play areas. I documented the visits by taking photographs of the spaces, and of children in their environment.

In parallel to the thematic consideration mentioned above, analyses of the various environments (in architectural terms) were undertaken during the visits, interviews, architectural documents and supporting information provided by the architects. The

final analysis was aligned to specific concepts and features considered in the Theory and Literature review or gathered from the Design Guidelines reviewed. The analysis was extended in the form of Architectural Drawings and through photographs taken. This specific method of analysis is common practice in the study of architecture and could be compared to the forming of a pattern language (as discussed in Chapter 2). As an academic teaching architectural design, as well History and Theory of Architecture, I have developed a framework for this kind of analysis that students follow when conducting precedent studies and (in some instances) case studies.

Framework for the architectural analysis is as follows:

- Background and location of the building.

- The architect or firm - intentions, relations, influences

- Architectural Elements and Design Principles

- Architectural Space and Place

- Architectural Response to geographical context (urban, social, climatic etc.)

- The Architectural Meaning established.

- Architectural Tectonics (Technology, structure, materials)

With two additional criteria concerned with the typology:

- Architectural Response to children within the defined ages (0-2, 2-3, 3-4, 5-6)

- Response to the educational practices and developmental delays of children.

These criteria form a methodology rather than a checklist in order to underscore the primary focus of the observations and the analysis geared towards an understanding of the interaction between environment and children.

A further component of the primary research takes the form of interviews with key informants. The purpose was to validate or clarify aspects of the research, as related to the literature or from the case study. The informants were selected on the basis of their involvement in the child development sector or in a related field in architecture. The interviews were carried out in person, telephonically or via email if the person was not available or lived further away.

The research was confined to a short time period which coincided with the National summer holiday and this did impact on the possibility of developing a relationship with each Centre. The children were aware of the presence of an outsider. This may have impacted on their behaviour and have been avoided if several visits to the centres were included.

One of the problems experienced was how to fit the research interviews into the very busy schedules of some of the professionals. This caused a delay in completing the

analysis of Site 2 and Site 3. A further difficulty was to obtain a response from the Key Informants initially included as ideal informants. Other informants were approached (where possible), or if this was not possible the research was completed without that specific aspect included.

In the following section, a brief description of each site highlights their differences and what evidence could be obtained from the study.

4.1.2 LOCATIONS AND BACKGROUND

The original intention set out in the research proposal was to review projects based in rural, peri-urban and urban setting with the intention of understanding the many diverse conditions that frame the environments designed for children. The criteria for site selection changed eventually to focus on a more deliberate attempt to provide quality environments through architectural design. Within this selection, richness in contextual conditions is evident, and is aligned with considerations set out in the Integrated Development Plan issue in 2013.

In each case study the first section provides the contextual conditions and physical characteristics of each site are provided as a background to the research. Graphic material – in the form of aerial photographs and photographs of the environment in context - are included, as a visual essay of the case study.

4.1.3 INTERVIEWS AND OBSERVATIONS

The data presented was collected through site visits, unstructured interviews, observations and emailed questions to architects. Architectural drawings and background information were collected from websites, provided by the architects, or gleaned from published material. Photographs were taken during the site visits to provide a visual expression of the analysis process.

The data gathered shows diversity in responses, which can be attributed to differences already highlighted in the preceding sections. Analysis of the data will be included in Chapter Five of this document.

4.2.   CASE STUDY SITE ONE: QALAKAHLE ECD CENTRE, MANSEL ROAD, (2015).
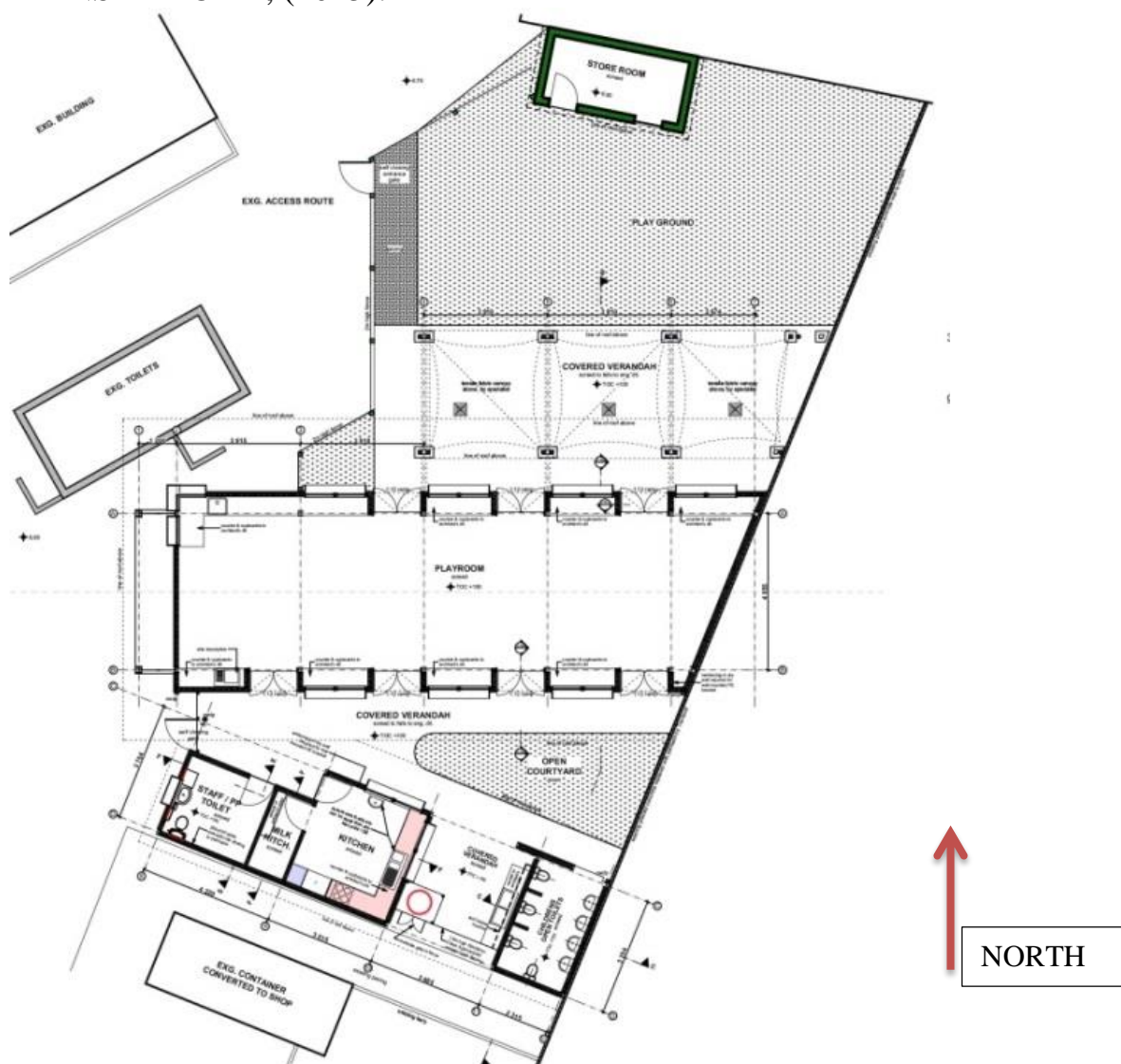
Figure 36 Qalakahle ECD Centre Plan (not to scale)   **source: Ocean Architects (2015)**

4.2.1   INTRODUCTION

- This project replaced an existing facility that was deemed unfit by the Department of Health and The Department of Social Development due to the very poor physical environment.
- The site allocated to the development of an ECD centre is small and contained within an existing inner city, informal trade setting. The market is part of a charter bus facility and is most active at night.
- The ECD serves a community which fits the criteria of being poor and disadvantaged; parents are often self-employed and children are exposed to social ills.

- Feedback from the staff on how the new building has impacted on the children, and on their ability to provide quality care and foster development.

4.2.2 LOCATION AND BACKGROUND

Figure 375 Mansel Road Market: Trading stores   Source: Ocean Architects (2014)
Figure 386 Qalakahle ECD centre Areal View of Mansel Road Market   www.GoogleEarth.com (2016)
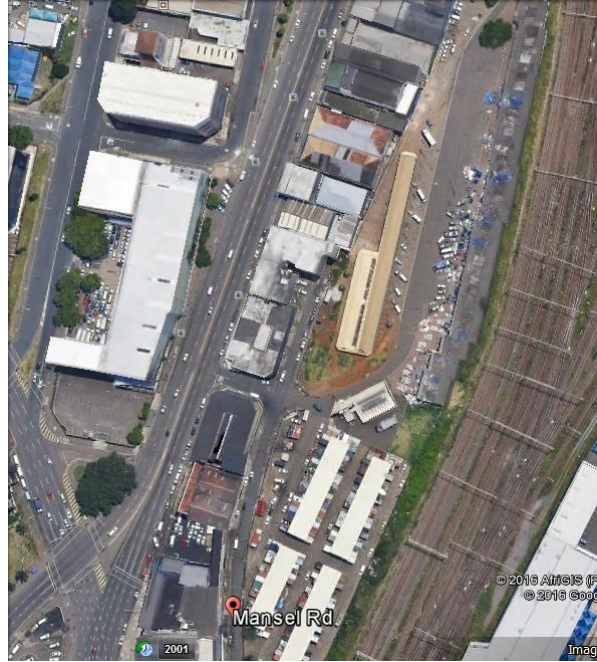
The ECD Centre forms part of the Mansel Road Market, which borders the railway along one side. Towards the west, Mansel Road runs parallel to Umgeni Road, which is a busy feeder route into Durban.

Figure 39 Entrance to Original Qalakahle ECD in Market Stall   Source: Ocean Architects (2014)
Figure 40 View of Mansel Rd Market from New Qalakahle ECD Play area   Source: Author (2016)

Figure 41 Mansel Road Market: View of Container Market Stalls   Source: Author (2016)
Figure 42 View of Mansel Road Market form Qalakahle ECD Play Area   Source: Author (2016)

Mansel Road Market provides both a taxi stop and an informal trade area. Traders are positioned either in permanent buildings or container facilities. The Mansel Road Transitional Housing Unit forms part of the Market. On the days that I visited the site the Market was quiet as the visits were scheduled in the mornings of weekdays.

Figure 43 Qalakahle ECD centre Boundary fence and goods from adjacent marker stall. Source: Author (2016)
Figure 44 Qalakahle ECD centre with rubbish blown against the fence and rail tracks in back ground.
Source: Author (2016)

The site is exposed to pollution from the surrounding area; rubbish is blown onto the grounds by the wind. Noise from the adjacent railway line as well as the Market and taxi area is constant. The ECD Centre is one of two that provides care for children from 0-6 in a more formal setting. Other options for mothers would be to leave their children with neighbours, family or to take them along to their places of work. The ECD Centre serves a low socio-economic sector of the population in a densely populated, inner-city environment.

4.2.3 INTERVIEWS AND BACKGROUND

Project Description.

The new ECD centre is a colourful building slightly hidden behind other buildings in the Mansel Road Market. The structure is fittingly low in scale relating to its context and to the little people playing on the grass outside. A timber-structured shading area softens the somewhat hard face of the corrugated sheet metal cladding. The building reads well within the context of informal trade and the rail tracks behind.

The clean colourful exterior leads into a cool inviting volume of space inside. The interior space consists of a long narrow space with some divisions created by a cupboard, and a low rail is used to contain the baby area. Freestanding book shelves are also provided. Storage is included in counters that provide work surfaces and also low level cupboards that function as seating areas.

A small outdoor courtyard space is provided, with services behind providing ablutions and kitchen areas.

Figure 45 Mansel Market crèche in the original accommodation　　**Source: Ocean Architects (2014)**
Figure 46 Mansel Market crèche - Baby area was limited to a double bed　　**Ocean Architects (2014)**

Figure 47 Q ECD: Covered area as in-between space.　　**Source: Author (2016)**
Figure 48 Q ECD: Continues Play Room to allow flexibility as Hall　　**Source: Author (2016)**

Interview with Linda Morrison Director of NGO

Building and site ownership by NGO. City of Durban (iTrump) contacted the NGO when the ECD was closed by The Department of Health due to the space being unsuitable and not meeting the standards set in the guidelines of the eThekwini Health Department.

An unoccupied piece of land was identified through iTrump within the Mansel Road Market. The need to provide a child care facility was due to the lack of a safe and child friendly area at the market. Children were exposed to social ills, and were at risk of

being raped, run over by moving taxis, being exposed to dangerous chemicals stored in containers, and pollution, as well as having limited potential for normal childhood development.

The Qalakahle ECD centre is a fee paying facility run by a Zulu- speaking, trained teacher, Jabo Ngobese. The staff present on the first visit were the manager and Gr R teacher with an assistant (who is also a teacher). Two caregivers work in the Baby Area. The NGO is actively assisting with the training of some of the teachers. They also ensure that an Occupational Therapy intern is placed to visit the school on a weekly basis to work with the children, and to identify possible learning difficulties or developmental delays. The NGO Manager visits on a regular basis to monitor the use of the facilities and the management of the ECD centre. The NGO supplied all of the furniture and equipment at the ECD centre and continues to monitor the use and standards of the facility.

The numbers of children are still low as it is the start of the year. The total enrolment and consistency of attendance are impacted on by the required fee, which although minimal, is still beyond the means of some of the parents.

The Manager is currently in the process of applying for registration with The Department of Social Services in the hopes of obtaining funding, but a local ECD facility run by the Methodist Church has registered with DSD, and were informed that they do not have funds available to pay the grants.

The NGO has equipped the building with electric fencing, to ensure security.

Linda stated that the inclusion of a toilet for disabled use seemed unnecessary as it required a large area which is costly. Currently the additional area in the disabled toilet is used for storage of mattresses and as a laundry room.

The NGO intends to replicate this design on other sites. Building materials and components will be donated by industry willing to continue their support.

Continued support of the NGO enables the ECD Centre to continue to provide a better quality care than would otherwise be possible. Consumables such as formula milk and porridge are provided on a regular basis.

Interview with Jabo Ngobese (Teacher and Manager)

Jabo is a trained teacher and is not originally from the area, but Umlazi. She has been running the school for the past 15 years. She explained her process of getting qualified which was by attending various courses. She is now looking at completing another course.

Figure 49 Children enjoy play on the jungle gym. Q ECD   Source: Author (2016)
Figure 50 Traditional weaving included to add colour. Q ECD   Source: Author (2016)

The children who attend the ECD Centre are from the surrounding area. Their parents are mostly single mothers who earn very little and work long hours. Some are traders in the area, but many are engaged in other types of employment.

The one element that connects all the children is that they live in poverty. Groups of children are not constant; with some attending for a month or two only. The school allows parents to register children for a minimum of one month at a time. Jabo explained that often the mothers may have earned enough money to go back to their rural homes for a while and that they may return later in the year. At the time of the interview (January 2016) the numbers were still low and she was expecting the numbers to rise as the parents earn enough to send their children to school.

The age range is from birth to 6 years. Some mothers send their children without food, or milk and nappies for the babies. It was difficult to establish if children at the ECD are exposed to any social ills or have specific disabilities. The answer came back to "poverty", and that those who send their children want the best for their children.

The ECD centre opens at 7am and closes when the last child is collected, usually around 6pm. Jabo explained that often mothers bring the children to her home across the road as they have to leave for work before 6am. Jabo then bring the children to school with her.

In terms of the design process the architects showed Jabo the plans of what they intended to build. She was very pleased with the proposal. The feedback of what she thought of the building was completely positive. It was clear that what they had before was lacking in so many ways that this new building was more than they could ever have hoped for. She showed appreciation for being shown the architect's intentions. Her view of the aesthetic quality is that it reads as a space for children because of the use of the colours. She also explained that the building is cool in summer and that it was easy to keep clean.

Acceptance by the market community was difficult to establish and took some time. Occupants of the Mansel Road Market were generally opposed to the building of the ECD as the open space was being used as a meeting space and for temporary storage.

They also saw Jabo as the owner of the building, and as an outsider, as she came from Umlazi. This perception improved over time as the community could see that the building was serving a good cause and that the children were benefiting from the presence of the ECD Centre.

Jabo explained that she had to personally stay positive and convince the community that the building was there to stay and belonged to those who occupied it. The building has been used as a community space, and meetings were held inside the space in December 2015.

Jabo explained that they felt secure because of a good relationship with the neighbouring stalls. Surveillance from the surrounding stalls provides the ECD Centre with excellent security. Jabo said that there has been no attempt to damage the building or any attempts to break in. She believes that it is due to a sense of pride that the building is part of the market. It will certainly over time become a landmark.

Whilst I was conducting the interview a man came to deliver soap for the school. He told me that it was a very good school. One could see a sense of pride in his remark.

Interview with Architect_ Michelle Quarmby (Ocean Architects)

Provide a description of the process that was followed to establish the brief: Who was involved from the ECD, NGO and City?

    The brief was established by firstly assessing the existing Crèche.
    We had minimal input from Linda of Imagine Durban in terms of the brief.
    During the design process we presented to all the stakeholders to get feedback on the design.

What documents or guidelines were referred to in establishing the design?

    The basic requirement for the design was derived from Neufords Metric Handbook.
    Durban City Department of Health Minimum requirements

What influenced the design?

    Lessons learned from previous projects, specifically the King George Hospital School where the practice provided a revamp design to improve the severally

dilapidated conditions of the 50 year old school. The intervention increased classroom sizes and added colour as well as light and ventilation. Specific considerations were climatic as well as considering what worked for the children.

Additional design background was gathered from visiting other preschools and crèches that were successful. The aim was to understand more about designing, the specific typology, and how the spaces are used.

What were the key aspects considered in developing the design?
They responded to the context and typology:

- Site location (market, railway, taxi's) and small site

- Security and supervision of the children.

- Climatic response

- The scale related to children was also of importance.

- Another consideration was to allow for the building to be used for community meetings.

-

What determined the form making, choice of materials, technology and structural solutions?

The design developed through the availability of donated or reduced-cost building materials rather than the materials being chosen to achieve specific architectural objectives. The only components that were not donated were the doors, windows, paint and the concrete slab. The design has minimal windows as a result and could not include high level ventilation. Donations of all the materials were achieved through the architects.

The intention of the simple form and the steel structure was to allow a short construction period as well as the possibility of implementing a repeat of the design on a different site, with further donations of materials by the existing donors.

The design was approached with the intention to include a robust design requiring minimal maintenance. The building systems consist of insulated panels to maximise the control of heat gain.

Colour was included in the design as the architect wanted to provide a colourful and welcoming space that read as being child-friendly.

The inclusion of coloured Perspex on the fences was to provide transparency but still a sense of enclosure.

The design brief was established by the architects with minimal input from the user or the NGO (client). The design was presented to the NGO, the School Manager and other relevant stakeholders, like iTrump, City Architects, and The Department of Health. The

guidelines from EThekwini Health Department were followed in terms of the meeting the basic requirements.

All feedback from these presentations was positive, with almost no input regarding possible changes to the design.

Construction Process:
The biggest challenge to the building project was the contractor's lack of skill and understanding of the technology to be used. The contractor was appointed through nomination by one of the donors and was not ideal for the project due to lack of experience and skill.

The jungle gym was provided by others. The architect considers it to be too large for the children and positioned too close to building edges that could be dangerous.

The design included space for plants in the outdoor play area, but the teacher removed the plants, due to a perception that they would attract snakes and other unwanted creatures. The value of plants or nature seemed not be understood.

The architects thought that the provision of Design Guidelines was necessary and that the following items should form the key considerations: Safety; Surveillance; Climate; Hygiene; Flexibility; Light and Colour; Scale. A further key element is to constantly pose the question

"what would a child design for this space?"

Observations and comments regarding the interaction between children and environment.

The new building is clearly an immense improvement from the poor and inappropriate conditions of the previous setting.

The general impression of the building is that it is good quality, robust and clean. The design and use of materials provides for low maintenance.

The layout constitutes one big space that could be used for community meetings. The spaces are divided, with one storage unit to provide for a Gr R teaching area, and low level railing with a book stand to contain the baby area on the other end of the space.

The outdoor environment provides for a standard jungle gym. The jungle gym is located too close to building edges and the fence, which may cause injuries if a child falls.

The grass will probably not last once the numbers of children in the school increases. The capacity is 70, including ten babies.

No natural elements are included in the outdoor play area.

The smaller outdoor play area provided for the babies consists of a paved area with an inlay of artificial grass. The provision of "soft play" provides for motor skill development.
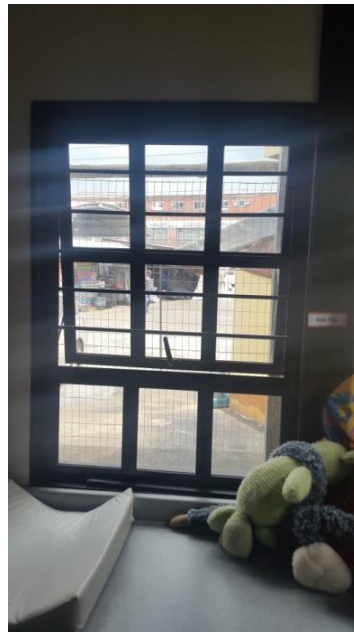
Figure 53 Baby outdoor play area and line up to ablutions. Q ECD   **by Author (2016)**
Figure 54 Built-in counter intended as office used as baby change area. Q ECD.   **by Author (2016)**

In the baby area the toddlers were hanging onto the railing and climbing onto trollies in search of explorative areas. A tiny baby was left in a support stool at a high level for some time, removed from any personal contact. The baby area is dominated by the cots and trollies, giving the area a somewhat institutional atmosphere. The babies and toddlers did not have any toys to play with during the time of the visits. It seems that baby stimulation is lacking within the programme.

Figure 55 Baby area with minimal potential for exploration. Q ECD   **by Author (2016)**
Figure 56 Exterior features colourful cladding and reduced scale. Q ECD   **by Author (2016)**

An L-shaped counter was provided; originally intended for the admin/office area, but is used as a nappy change area and for storage of soft toys. One wash-hand basin is

provided in this area and although intended for hand washing after nappy changes only, it could also be used for handling of food, which is likely to cause contamination.

In the kitchen a sink and wash hand basins have been provided to separate hand washing from food preparation. A separate milk kitchen is provided as part of the kitchen but no sink or wash basin is in this space. The large kitchen space could provide a staff area, but no chairs and table are available.

The children's ablutions included 4 child-sized toilets and four small wash-hand basins. Some of seats are broken. The architects and NGO Manager suggested that it should not have been installed. The wash-hand basins have been provided with over-sized taps, which were donated and had to be used.

Photographic review.

Figure 57 Jungle Gym attracts most of the children for active play. Q ECD   by Author (2016)
Figure 58 Group of boys moved their table to their own space. Q ECD   by Author (2016)

Figure 59 Covered area where the older children have morning snack. Q ECD   by Author (2016)
Figure 60 Optimum use of Jungle Gym. Q ECD   by Author (2016)

Figure 61 Interior exterior connection through 5 double doors. Q ECD   **by Author (2016)**
Figure 62 Baby area with cots and cribs in rows. Q ECD   **by Author (2016)**

Figure 63: Baby area with railing as divider. Q ECD   **by Author (2016)**
Figure 64: Low level storage doubles up as counter and seating space. Q ECD   by Author (2016)

Figure 65 Cupboard as divider with equipment stored on top. Q ECD   by Author (2016)
Figure 66 Gr R area with teaching aids on display. Q ECD   by Author (2016)

Figure 67 Children outside ablutions. Q ECD   by Author (2016)
Figure 68 View through colour fence onto back of market stalls. Q ECD   by Author (2016)
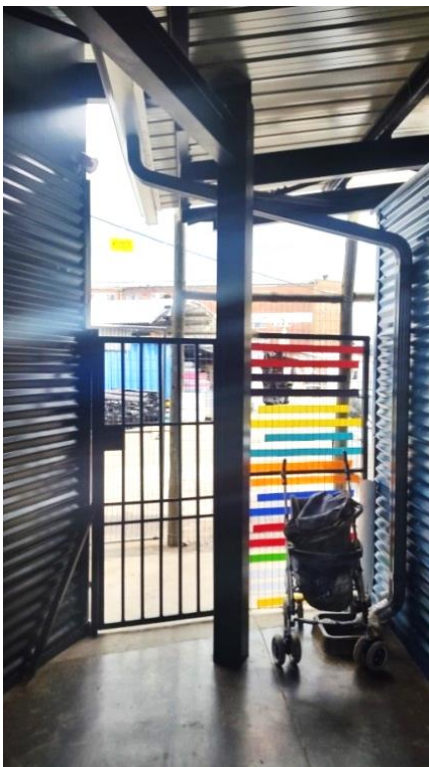
Figure 69 Left over space in opening between Services and Playroom/Hall. Q ECD. by Author (2016)
Figure 70 Covered area seemed under-utilised. Q ECD   by Author (2016)
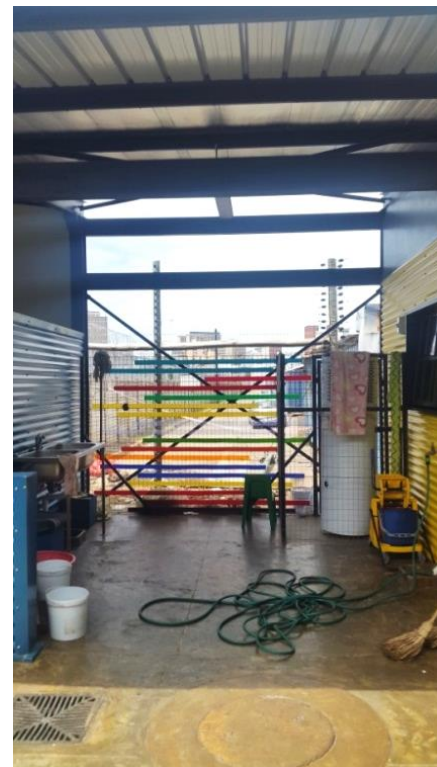
4.2.4 CONCLUSION

The case study of Qualakahla ECD provided insight into a typical urban informal situation of Early Childhood Development as well as the potential of architectural design in this context. The role of the architect is intentionally to be in service of society as no fees were charged.

The interviews and site visits were informative and each of the interviewees provided a unique perspective to the research. The impact of poverty and urbanisation was highlighted by this case study.

As the first case study to be completed the methodology could be tested and confirmed. The interviews at this site were less structured than at the sites that followed as they built on this experience.
The analysis of the case study will form part of Chapter 5 along with the other case sites.

4.3   SITE TWO: LIV VILLAGE ECD CENTRE, VERULAM, (2014)

Upper Ground Floor

Lower Ground Floor

NORTH
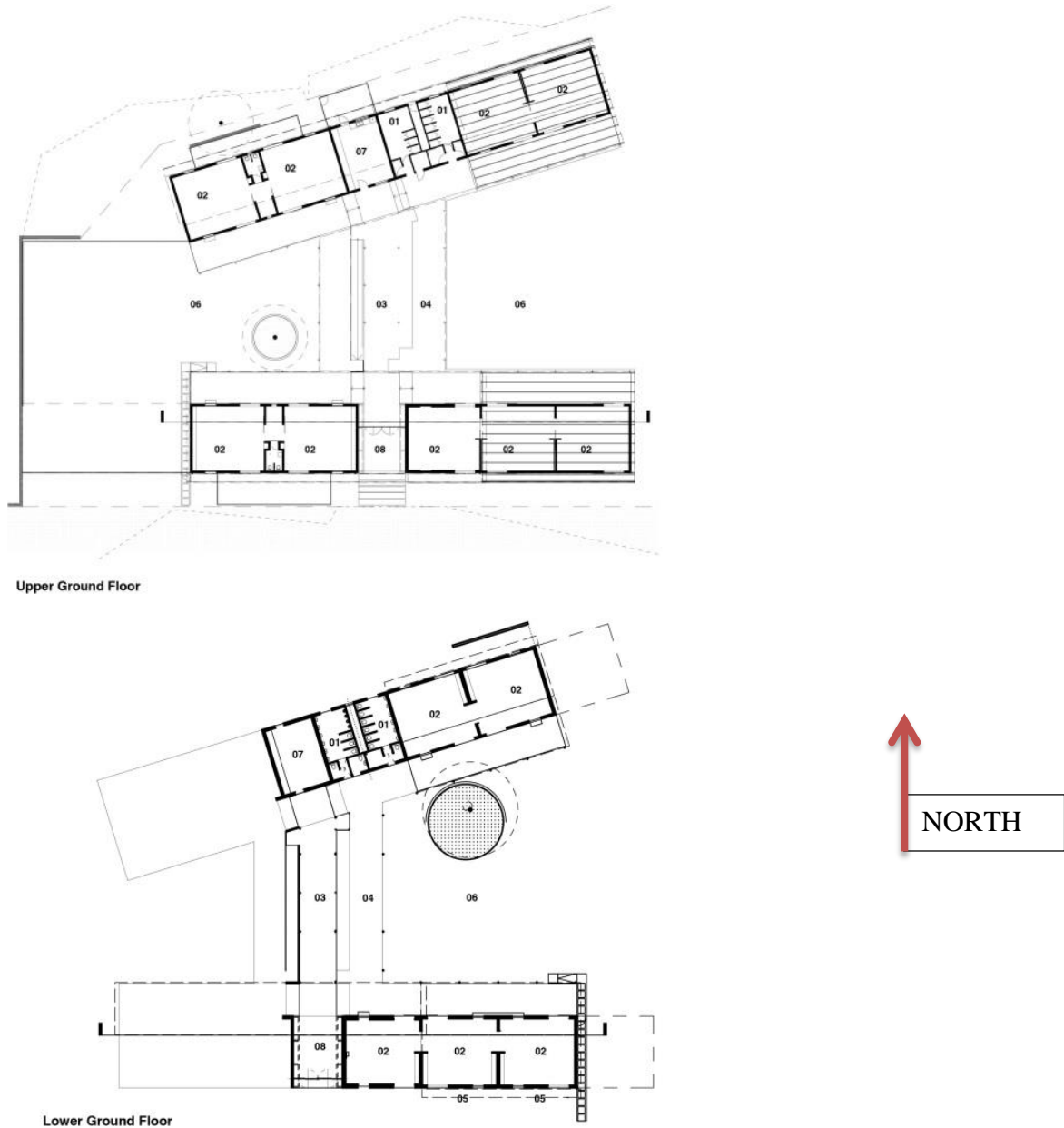
Figure 71 LIV Children's Village ECD Upper and Lower Ground Floor Plans (Not to scale)
source: DesignworkshopSA 2015

4.3.1   INTRODUCTION

- This project addresses the problem of HIV, orphaned children, and children removed from their biological families due to social ills.
- A limited budget was provided and numbers of children are large (200 children)
- The ECD is integrated into the village community comprised of a Community Hall, Clinic, Social Development Offices and a school. This relates to all aspects of ECD (Education, Health and Social) as proposed in the Integrated Development Plan 2013.

4.3.2 LOCATION AND BACKGROUND

The LIV village is located on the outskirts of Durban, inland of the North Coast.

Figure 72LIV Village Aerial view   **Source: www.googleearth.com (2016)**

The Village sits just outside of a settlement and the Hazelmere Dam. The ECD serves only children who are placed in one of the Village Foster Homes. The physical location provides a calming natural setting with a view of the surrounding landscape. The general density of the surrounding area is low, with clusters of settlements along the main routes. The Village itself has a slightly higher density, but still provides the sense of a village. The Village Church services are open to the wider community and attract large groups of people.

The site is located on a hill and temperatures in summer tend to be extremely hot and humid. Winters are moderate.

The children are placed by social workers and constitute orphans, or those temporarily removed from their family settings. The children are from low socio-economic environments, affected either by HIV or other common socials ills. The Village provides a safe place for the children who are placed within a family-type setting. Medical provisions and therapeutic interventions are provided as required. The Village has a Christian foundation and operates as an NGO. Funding for the Projects is based on donations from businesses and individuals, locally as well as international. Some

services are provided by volunteers. Staff accommodation is also provided on site, but in a specifically identified area.
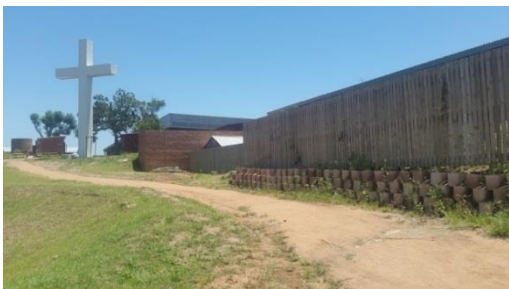
Figure 73 LIV Village conceptual sketch
Figure 74 LIV Village ECD: View outside entrance towards Landmark Cross

The Village is based on a similar Model pioneered in Uganda by American missionaries. This kind of setting provides a non-institutional, holistic approach to childcare for children who are unable to be cared for within their natural family unit.

Figure 75 LIV Village ECD Courtyard Play area
Figure 76 LIV Village: Line of Homes and Adventure Play Equipment

4.3.3 INTERVIEWS AND OBSERVATIONS

Project Description.

The facilities provided sit within the Village context adjacent to the school. The buildings are simplistic in form and uncomplicated technological methods are evident. The school borders two open-ended courtyards with a covered area and ramp area between the two. The top courtyard serves the children from 0-3 years, while the lower courtyard accommodates the children from 4-6/7 years. Each of the courtyards features a well-established tree that provides shade. The covered walkways that run along the length of the classrooms are wide allowing for teaching and play activities. The design features good storage facilities and flexibility, with inclusion of sliding doors to link the classrooms. Each classroom has a small enclosed yard on the outside of the building. The ECD accommodates only 40 children at present, although the design allows for a capacity of 200. The class sizes are kept small and two class rooms are not in use.

Figure 77 Arrival with Pivot Doors. LIV   by Author (2016)
Figure 78 Lower Level Outdoor Play Area. LIV   by Author (2016)

The outdoor areas mostly used by the children are the ramps and the sand area under the trees. It seemed that the children preferred to play in the shade as it was a really hot summer's day. The outdoor area also provides climbing equipment and a bike track. The upper courtyard and play area beyond the buildings are not used at present. The classrooms have small enclosures on the outside faces.

Interview with Amy Lewis Head of ECD and Gr R teacher.
Amy described the new ECD facility as the best environment she has worked in. She explained that before, she had been teaching in Mozambique - initially under a tree. Later she was able to construct a classroom using indigenous materials and construction methods, (reeds and mud were used to construct the walls). Her view is that the key to developing the child is lies in the passion and innovation of the teacher. It is not dependent on a great building. However, she stated that it is certainly easier when good buildings are provided that accommodate the needs of the children.

Amy is the Head of the ECD as well as the Gr R teacher. The ECD takes children from birth to 6 years to include Gr R. Situated within a Foster Village the children do not

always attend the school on a long term basis. Some children are placed in the Village for a period of 2 years, with the original intention that they will be reunited with their family or adopted. The children all come from homes affected by HIV or affected by social ills of some kind. All children are placed by The Department of Social Welfare.

The ECD is supported by an Occupational Therapist who is permanently based at the Village. Other therapists include Psychologists, Physiotherapists, and Speech and Language Therapists who are volunteers and treat the children on certain days. The therapists use rooms in the ECD Centre, as well as working with the children in specialist accommodation located in the Village. An Art Therapist has been involved in the past, but as the service is voluntary, it is not constant.

HIV positive children are part of the overall population of the children. All children are treated the same. There are 3 children with Cerebral Palsy who are accommodated in the baby section. They are wheelchair-bound and each has a personal caregiver.

The school accommodates children with special needs, children with Autism and behavioural difficulties. They also have a child with brain damage due to severe Epilepsy.

The ECD Centre was previously located in timber buildings. The new building provides two separate zones; the upper area accommodates the babies up to 3 years old; while the lower area accommodates the 3-4 year olds and Gr R children.

The preschool / Gr R section is set up so that each classroom provides for a base into other learning areas. The children arrive at a home base and spend the initial part of the day, as well as the end of the day, in this room. The children move around with their teacher depending on their programme for the day. The learning areas are classified as: Fantasy Room, Art Room, Numeracy, small world and language.

The classes are kept small at present with around 10 children per class. Four classrooms are currently in use. Amy considers the small classes ideal while they are still developing their programme and learning to work with the kind of challenges that the children present. The staff will be better equipped to deal with larger numbers over time. At present the ECD Centre has 4 teachers and 4 assistants. The school functions from 7.30-12.30 only. The foster mothers bring children in the mornings to school, and the children bring a packed lunch.

Two classrooms are not used by the ECD Centre at the moment. One of these rooms will be set up as a music room, whilst the other is being used over weekends for church.

Amy believes that the classrooms, the layout and the environment in the ECD Centre provide the perfect setting to foster optimal learning and stated that she did not expect to find this kind of quality in a foster village.

Figure 79 Exiting Tree with veranda wrap-around. LIV   **by Author (2016)**
Figure 80 'stage' used as scooter riding space. LIV   **by Author (2016)**

Figure 81 Three levels of covered Play area viewed from entrance. LIV   **by Author (2016)**
Figure 82 Open views from upper play area. LIV   **by Author (2016)**

Inter-leading classrooms with big sliding doors allow for the flexibility of combining 2, or even 3 classes. The classrooms are cool, even on hot days. Ventilation is provided by the big doors on both sides of classrooms. Windows are also placed to provide additional cross ventilation of the classrooms.

The verandas are ideal and, with the ramps, work well for both the able bodied and the disabled children who are currently accommodated. The children can run up and down the ramps on rainy days, and enjoy using the covered play area outside of the classrooms.

Secluded spaces are not encouraged as this makes supervision more difficult. The opportunity for individual activity is provided in the book corner and on the platform on the jungle gym.

The ramp and covered area are intended to accommodate concerts, but as the main hall of the school is also available, they have not made use of the space for this purpose.

Figure 83 Existing Tree with circular raised area to define the space. LIV   by Author (2016)

Outdoor spaces are used on Sundays for church activities, specifically the raised area around the trees which becomes a stage, with the children seated on the grass around it.

The school takes Foster Village and staff children only; no children from the surrounding areas can be accommodated.

The initial system in the Foster Village had a separate baby house for children from 0-2years. It became evident that developmental delays were caused by the limited interaction with siblings which a natural family environment could provide. Some basic life skills could be learned in the house model that attempts to form a normal family.

In the long term the use of the school may change as the intake of children is not consistent and the numbers of young children may fluctuate over time.

Amy considers the natural environment as important part of the ECD Centre. She stated that they would like to include dedicated planted areas, but that this would require additional funding.

The ECD Centre encourages the principle of self-made things, cardboards boxes, plastic bottles, tins and so forth, to allow children to use their creativity to make their own toys. The children are taught to use what is there rather than expecting to be given a ready-made object. Amy explained that her own experience has taught her that you do not need expensive teaching materials and equipment from shops. She also considers the need for a well-designed building as being of lesser importance. To her the real issue is that the intentions of the teacher are to help the children, and that they work with enthusiasm and creativity.

Amy previously worked in Mozambique at a centre where mothers were rehabilitated from prostitution. While the mothers were being taught new skills, the children needed to be cared for and provided with stimulation. Through her initiative a school was developed. Although initially it was very rudimentary and held under a tree, it later improved as Amy raised funds to build a classroom using local materials and construction methods.

120 children and 2 teachers - what benefit? The surrounding area has many privately run ECD Centres. The quality of these centres is generally low and teachers are limited in their experience and knowledge. LIV does Outreach work in the local area. They are careful about providing assistance to other crèches, and first ensure that the object of improving the facilities is to benefit the children

Regarding the curriculum: most children are behind, so the CAPs system cannot be followed completely. It does however, provide a good structure. A thematic system is implemented. The younger children are not included in the CAPs system

Figure 84 Shaded sand play area and tree. LIV   **by Author (2016)**
Figure 85 Welcoming entrance through oversized timber pivot doors LIV   **by Author (2016)**

Figure 86 Hub of activity along veranda LIV   **by Author (2016)**
Figure 87 Constructive Play with found objects LIV   **by Author (2016)**

Figure 88 Fantasy Play continues outside class room. LIV   by Author (2016)
Figure 89 Smaller upper courtyard as 0-2 play area. LIV   by Author (2016)

Figure 90 More intimate play area of 0-2 level LIV   by Author (2016)
Figure 91 Sensitive scale adjustment to deal with change of level LIV   by Author (2016)

Figure 92 Upper level with reduced scale for younger children LIV   by Author (2016)
Figure 93 Activity along ramp and sensory panels LIV   by Author (2016)

Figure 94 Oversized sliding doors for interaction between interior and exterior. LIV. by Author (2016)
Figure 95 Children move equipment indoors. LIV   by Author (2016)

Figure 96 Interior of Maths classroom. LIV   **by Author (2016)**
Figure 97 Baby play room, carpet area maximised as play space. LIV   **by Author (2016)**

Figure 98 Maths class room showing door that could lead to next classroom. LIV.   **by Author (2016)**
Figure 99 Small World Play Room and Home base to one of the groups. LIV   **by Author (2016)**

Figure 100 Shared store room between upper level classrooms. LIV   **by Author (2016)**
Figure 101 Children's ablutions opposite shared store room. LIV   **by Author (2016)**
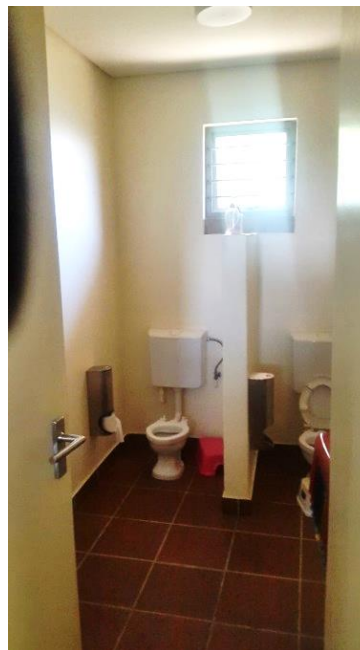
Interview with Andrew Makin from *DesignworkshopSA*

The conversation started around the primary research question: How can architectural design provide nurturing and stimulating environments that influence the care, education and development of children between the ages of 0-6 in the province of Kwa-Zulu Natal, South Africa?

Andrew responded first that he " would not know", but then discussed what he thought may be a response. The design of the environment needed to provide possibilities for being a human being. The design needed to be "switched on" to an environment that supported childhood development.

According to Andrew, the two key aspects considered in his architectural design were :

> Physical well-being, safety, health - enabling the body to exercise.

> Knowing that one fits into the world and that one relates to society in terms of:

> - **Relational** with other people; providing connectivity and wholeness.

> - **Cultural** What matters in one's history is what produces culture. In South Africa this aspect is problematic as different people tend to live in isolation of each other, making the creation of new culture very difficult.

> - **Economic** a better word would be negotiation. Understanding how transactions take place.

> **In the LIV village these aspects are translated into similar concepts in keeping with the client being a Christian-based organisation.**

> - Society – Love

> - Culture – Spiritual

> - Business – Negotiation (LIV currency was developed to allow mothers to trade/ obtain the goods for their households.)

Questions and Answers

Project Brief: (if a document is available) or description of the brief.

> The Project brief was developed but no formal document was written.

Description of the process that was followed to establish the brief. Who was involved from LIV?:

> The project brief developed along with the design of the project. It was not specifically documented. The client provided some generic information, the design would respond. The process was a cyclical method to provide a desirable outcome.

> Two ladies from LIV were involved, Joan the co-founder of the Village, and Margo, a woman with extensive Education experience.

Design process: Please describe how you developed the approach to the design. What documents or other schools were used to establish your design approach? Or was the design based on previous experience in similar buildings?

> The Village is based on the Watoto Village in Uganda, and the ECD Centre formed part of the whole village development. The aim was to establish what the essence of the village is concretely. The market place, the town square, living and gathering areas, the school etc. The aim of the architecture was to define spaces from the micro to the macro scale. Define the routes that connect the spaces. Creating place through this simple mechanism.

Project Description: Conceptual approach, relation to context, form making, choice of materials etc.

> The conceptual approach is the Village. The African proverb: "It takes a village to raise a child" was of importance to both the client and the architects.

> As described above, by defining spaces the opportunity arose to create culture.

> The architecture provided a simple typological response. The courtyard would provide the spatial definition of the ECD each with an existing tree. Within the court yard a sense of belonging could be established.

> The classrooms were designed to connect on two sides, to the outside. On one side to a private small enclosure; and on the other side to the verandah. The floor area is defined by two areas, screed on one side where doors open, and carpet on the other side. The classroom connects to the next room through another large door on the side where the floor is carpeted.

Construction process: Did LIV establish who would be the contractors? Were any local tradesmen etc. from the nearby village employed?

> The contractor was part of the LIV community; committed.

The building currently provides for children from birth to six years, was this part of the original criteria?

> The original design did not include baby care. The baby care was included in three existing timber houses that were repositioned to form a court yard.

Own evaluation - If you were to do a similar project would you approach it the same or what would you do differently?

Andrew stated that they did the best that was possible considering the situation. He thought that the aspect that made the project unpredictable and erratic was caused by the funding. The client did not know if they would be able to fund the building, or when it would be constructed.

The client had no experience in what they were setting out to do and Designworkshop had not worked with a client and in a situation like that before.

The formal processes of contracts etc. were not applicable, and in the circumstances not really appropriate, which is difficult to deal with.

We ended the discussion around the idea of design guidelines. Andrew suggested that the most important aspect in a project is to build relationships between people. The architecture can then follow.

Connected to the building of relationships would be to develop an organisational or design system that could relieve the inconsistencies related to the funding problems.

Other aspects discussed were the process of collaboration in the design process. They did not have the children who would actually occupy the building. The teachers were appointed later.

A need for flexibility in the building had to be considered as the uses could change. It has in fact, already changed.

The current aim for *Designworkshop* is to develop enabling spaces, meaning that created spaces must have potential inherent in them.

Photographic review:

Figure 102 Special Needs Therapy Room LIV   by Author (2016)
Figure 103 Special Needs area: Therapy Room LIV   by Author (2016)

Figure 104 Change in scale verandah height dropped LIV   by Author (2016)
Figure 105 Built-in concrete bench outside classrooms with colour added by teachers LIV   by Author

Figure 106 Separate Boys and Girls ablutions are used by both LIV   by Author (2016)
Figure 107 Low cubicle walls with no doors to allow supervision LIV   by Author (2016)
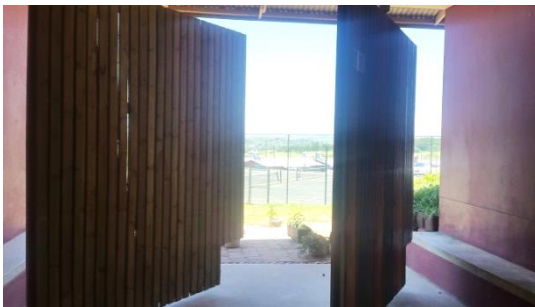
Figure 108 Entrance Doors left open LIV   by Author (2016)
Figure 109 LIV Village ECD: vista created through open entrance doors   by Author (2016)
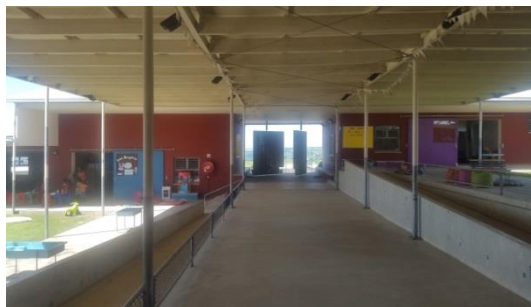
Figure 110 Sunken Trampoline in outdoor play garden. LIV   by Author (2016)
Figure 111 Small enclosed private area un-developed. LIV   by Author (2016)

Figure 112 View towards Village Square LIV   **by Author (2016)**
Figure 113 View of Covered Gathering space (church) LIV   **by Author (2016)**

Figure 114 Public area with communal facilities (Village Square) LIV   **by Author (2016)**
Figure 115 Village Square LIV   **by Author (2016)**

Figure 116 Adventure Play area. LIV   **by Author (2016)**
Figure 117 Therapy Building Intermediate space. LIV   **by Author (2016)**
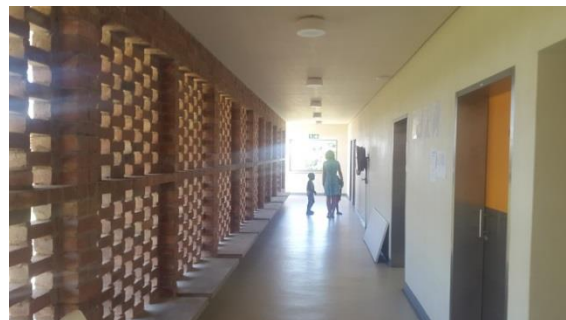
Figure 118 Village school building. LIV   **by Author (2016)**

4.3.4 CONCLUSION

The case study of LIV Village provided enriched the research with the Village concept that relied on urban placemaking strategies. The study originally focussed only on the ECD, but the site visit and initial investigation indicated that the ECD with the Village context has more value. The interview with Andrew Makin confirmed this notion, as the point of departure for the conversation dwelled on the Village rather than the ECD. The value of this Village concept will be further explored in the analysis presented in Chapter 5.

The interview with the ECD head is worth noting as her previous work experience in environments with no resources or buildings influenced the way she approached the purpose of the research. It was important in this interview to understand the value of using what is there.

Some parallels with the next case study in terms of the approach to the built form are evident.

4.4 SITE THREE: MANOR GARDENS PRIMARY SCHOOL, MANOR GARDENS, (2013)
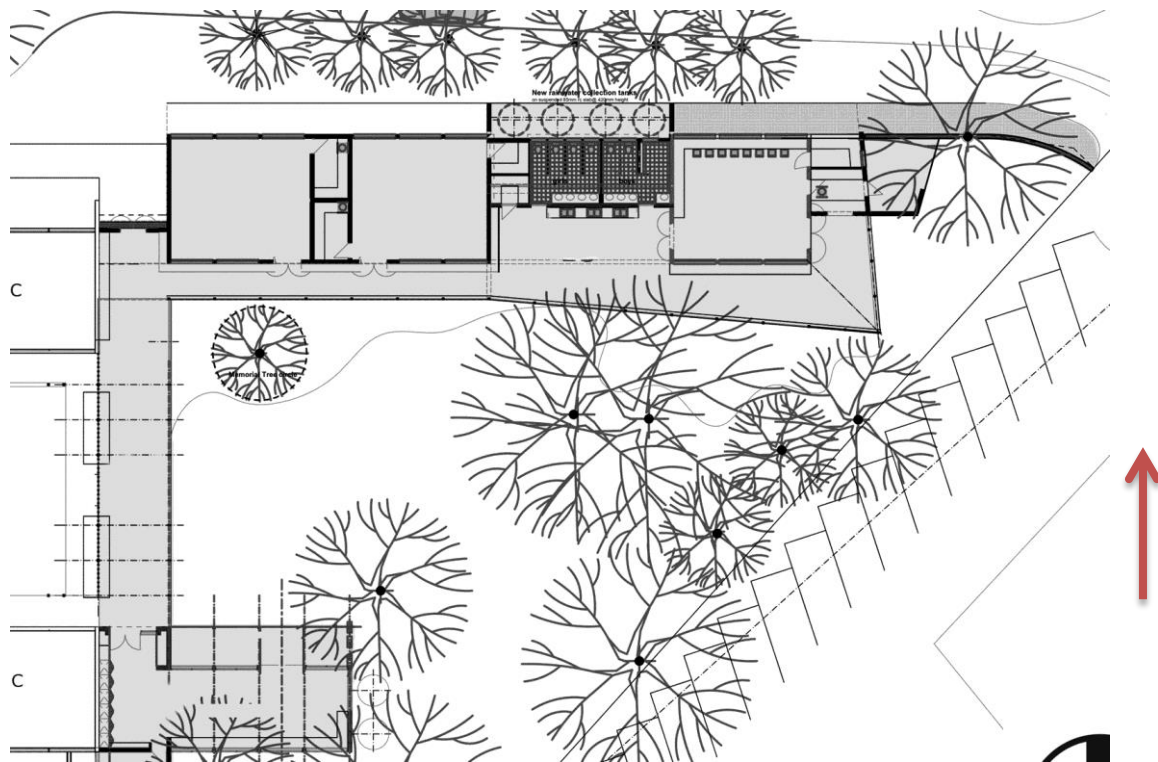
Figure 119 Manor Gardens Primary School Gr R Plan   **source: Amanda Leed (2016)**

4.4.1 INTRODUCTION

- The primary reason for inclusion of this school is the strong presence of the natural environment and that the school is a recognised Eco-School.
- The buildings provide simple architectural solutions and aims, which include environmental sustainability.
- The school is well-run and includes initiatives that could be extended to include dealing with children from disadvantaged backgrounds, requiring a unique approach to literacy.

4.4.2 LOCATION AND BACKGROUND

Figure 120 Manor Gardens Primary Aerial View   source:**www.googleearth.com** **(2016)**
Figure 121 Gr R Classrooms across Indigenous Garden. MG   **by Author (2016)**

The site constitutes a Gr R facility that forms part of a government primary school situated in the neighbourhood of Manor Gardens

The surrounding area constitutes low-density residential homes and the Howard College Campus of the University of Kwa-Zulu Natal is nearby. A Hindu Hall is situated opposite the school. The population of the surrounding area are generally of mixed race which is also reflected in the composition of the children attending the school. The school was first opened in 1967.

The site is behind "the ridge" of Durban, which impacts on its micro climate. The school does not benefit from the land and sea breezes as does most of the Berea area. The area has high humidity and dense vegetation. The school is recognised as an Eco School which focuses on preservation of the natural environment. The school grounds include indigenous gardens and well-established trees, as well as dedicated planting areas for the children.

Figure 49 Indigenous Gardens. MG   **by Author (2016)**
Figure 50 New walk ways and Indigenous Gardens. MG   **by Author (2016)**

The school attracts children from a middle class socio-economic environment with very limited intake from the nearby informal settlements of Cato Manor and Cato Crest. The school has a governing body and parents carry the salaries of additional teachers and resources, through payment of school fees, to keep the quality of teaching at an acceptable level.

Figure 122 Gr R and Gr 1 Play Area and Rainwater Harvesting Tank. MG   **by Author (2016)**
Figure 123 Aftercare Reading/Play room. MG   **source: Amanda Leed (2012)**

Key
1. Media centre.
2. New Tuckshops.
3. New Canopy.
4. New Uniform shop.
5. Multi- Purpose Room .
6. Senior After care.
7. Music room area.
8. New covered walkways.
9. Media centre.
10. Junior Aftercare.
11. New covered walkways.
12. Grade R.
13. Wet Play area
14. Grade R.
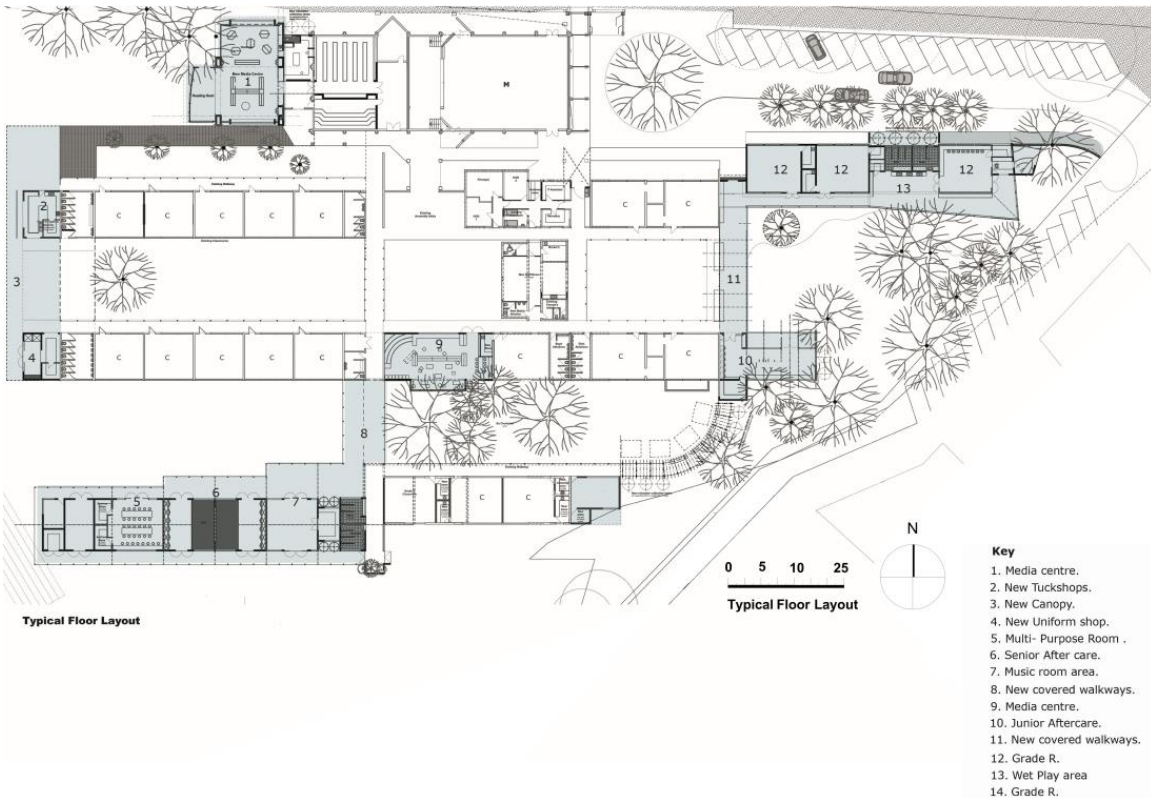
Figure 124 Manor Gardens Primary: Plan of School with additions in Blue   **source: Amanda Leed (2015)**

4.4.3. INTERVIEWS AND BACKGROUND

Project Description

General observations and informal discussion with Amanda Leed (Architect)

The Gr R Unit is set within a Primary School that was built in the 1960's, the building project was funded by a Trust.

The existing school featured established indigenous gardens in the courtyard spaces, which provided the children with constant contact with the natural environment. The position of the new Gr R classrooms was determined by a beautiful existing tree and an outdoor play area with climbing equipment.

The architecture is simplistic with face brick and corrugated roofs. The building form is linear with a North facing aspect allowing optimum orientation.

Figure 125 Covered Area provide for informal seating at play time. MG   by Author (2016)
Figure 126 Covered walk way in-front of class rooms. MG   by Author (2016)

Interview with Gr R Teachers and the Principal of Manor Gardens School.

Questions discussed:

The numbers of children in the Gr R year?
> In 2016 one class has been formed with 21 children. There is one teacher and one teacher's assistant. The class uses one classroom as home-base and a second room as art/creative room.
> In 2015 and 2014 there were two classes with between 14-16 children in each. There were two teachers.

The general socio economic background of the children?
> At present the children are generally from good homes where parents are literate and have no significant financial problems which impact on the children. The population is mixed-race. The teachers involved were white but the teacher's assistant was black. Previously children from disadvantaged backgrounds did attend the school. The school would provide food and other support as required.

Does the school accommodate children with learning difficulties?
> Yes the school has accommodated Autistic children, a child with vision impairment as well as a number of children with ADD and ADHD.

How do the new facilities compare to the previous facilities?
> The building was specifically designed to accommodate a GR R facility that was not previously part of the school. The classroom used to be temporary classes that were raised with limited covered walkways. The changes provided rooms that are cool in summer with provision of cross ventilation and fans, so no air conditioning will be required. There is minimal need for artificial lighting. The ample provision of covered walkways is a welcome improvement. Children can

use the space to eat their lunch outdoors. Storerooms are provided for each classroom and classes have the use of an outdoor equipment store.

What aspects of the environment are seen as positively impacting on the children and their development?

The teachers thought the school environment with its ample daylight and fresh air contributes positively to the children. New children are able to settle easily into the environment. The Fantasy Room provided as a designated space functions very well as it becomes the children's domain. The outdoor play area provides a good challenging environment and variety of activities. The Reading Room, which is part of the Junior Primary section is shared by Gr 1-4 and relates specifically to the school reading programme.

The kiosk with counters is at times utilised for baking activities as well as for having puppet shows.

Would you suggest any changes to the design of the buildings or the outdoor environment?

Provision of pinning boards for display of artwork. Currently the artworks are displayed on a brick wall using prestic. The provision of the small scaled toilet seems unnecessary as most of the children use normal toilets at home without assistance. The sandpit is situated in the sun and could benefit from shading.

What teaching methods are applied? CAPS only or other influences?

The CAPS system is followed but enhanced by more specific constructivist teaching approaches. The reading programme followed is introduced in Gr R. The principle relates to emergent reading where a word is associated with lived experiences rather than abstract book related learning.

How do this school environment compare with other schools where you have been teaching?

The primary difference is the indigenous gardens and the sense of Place and freedom it provides. The Principal related the feedback from a past pupil who had attended Manor Gardens School and then moved to a conventional school which had very limited gardens and natural environments. The child stated that she felt "caged in" almost like being in jail, after the freedom she experienced at Manor Gardens.

The classrooms have lots of glass, is this positive?

Yes as it does not allow any direct sunlight in but makes the building almost disappear. The natural ventilation works well specifically with the high-level louvered windows. The children do not get too distracted as the numbers in the school are low and the Gr R unit is positioned in a quiet corner of the site.

Does the aftercare facility function well?

> The provision of the covered area is used well. The children enjoy bringing toys out to play along the length of the covered area. The cover is enough to accommodate the children on rainy days and the outdoor play area provides for alternative accommodation.

The reading room is a unique room to find in a school, where did the idea come from? How does it get used? Do the Gr R children use this space?

> The reading room replaces the traditional library space and is specifically included for the reading programme that the school uses. Gr R children go to the room once a week to look at books and make up their own stories. The system allows for more individual attention to be spent with each child. This is the reason the reading room is provided with adequate space to spread the class out.

What if the school numbers were to increase, how would you deal with that?

> The response was simply that more staff would be required to keep the adult/child ratio low. Specifically for the reading programme where children require more individual attention.

Explain how the environment is used as part of teaching and learning:

> The natural environment provides an ideal extension of the classroom, where the learning is physically available and can be discovered by the children. The environment also provides for an openness not usually experienced in the school. The school is recognised as an Eco-school.

Is there any aversion or indication that some children find the natural elements threatening? Specifically related to cultural groups that relate some plants to attraction of snakes etc.

> The children consider the natural environment to be inviting and are seldom concerned by the possible presence of snakes or other creatures. The teachers present the natural elements in a positive manner and feet that young children have not yet formed the preconceived cultural issues surrounding nature.

Is there community involvement in the school?

> The school has a Governing Body which consists of parents. The smaller number of children in the school makes it easier for parents to get involved. An example is the gardens, which the parents were involved in establishing. The jungle gym in the Gr R outdoor area was also built by parents. The architect who was appointed to do the designs for the school was, at that time, a school parent.

Design Process:

The architect had meetings with the teachers as well as the Governing Body while developing the project brief. The teachers were able to provide their ideas and felt that they were included in establishing the outcome. The architect presented the design to the school at various intervals to obtain feedback. In the entrance of the school a model of the school was provided.

Interview with Amanda Leed, Architect. (*Leed Architects*)

Description of the process that was followed to establish the brief. Who was involved from school, funder and department of Education?

All of the above were involved.
- Started at MPGS with a development plan – which I was involved with as a member of the SGB
- All stakeholders were involved, SWOT Analyses and workshops with different user groups – staff, parents, learners etc.

Design process: Please describe how you developed the approach to the design. What documents or experience from other schools were used to establish your design approach. Or was the design based on previous experience in similar buildings.

We drew on:
- The precedent of the school itself - very bioclimatic building section and orientation prime
- Building on the positives – eg. sacred green space, wonderful existing junior playground
- Experience as both a parent in the school (my kids were both seniors, or finished by then) and a School Governing Body member for a number of years (this experience included a good understanding of the ethos of the school , but also the unique teaching approach, child-centred, psycholinguistic etc)
- Other school projects we had done – private (Glenridge Pre-Primary, Khulangowazi school and Dept of Works – Shallcross school) as well as precedent we researched.
- Other projects done by the Concord Trust – Northdene, Montclair junior primary etc
- The trust representative's brief and experience – down to the finest details – eg. yard off the kitchen etc.

Project Description: Conceptual approach, relation to context, form making, choice of materials etc.:

The design followed a similar design approach to the existing, but with more 'young-child'-friendly details – lower sills, double doors for better

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indoor-outdoor flow, better cross ventilation and fans (no air conditioning), definition of floor finishes for different experiences – vinyl for table work and carpet for floor work and play, special fittings, warm and woody but with colour.

The roof height on the section is also a couple of courses lower to make the scale more child-friendly.

Internal wall finishes also differ from the original buildings – plaster with paint and calm, cool colours as opposed to the original face brick (no maintenance)

More generous verandahs, a specific outside wet-play / creative area with North light, good ventilation and flow to the garden and fantasy room

Shape of the verandah is also more interesting with widened end which also affects the height, and creates a kind of "enfolding arm" to contain the playground, but also more floor area.

External materials influenced by existing structures

Construction process: Standard tender process to establish contractors? Were any local tradesmen etc. from the nearby area employed?

Trust / funder specified tender with QS in charge, Durban-based contractor. The local steelworker (across the road) was employed on all the security elements.

The building currently provides for one Gr R group of children, did the design consider that numbers could increase? (Is flexibility included?)

Dedicated classes are provided and the Fantasy Room is also a classroom size, should the need arise for a 3rd group. The Fantasy Room could be replaced in a less conventional building in the playground (this was an existing classroom, but with no store, so a store was added).

Own evaluation: If you were to do a similar project would you approach it the same way, or what would be done differently.

I would spread the net wider in terms of researching other models, precedent and examples. And in terms of sustainable building methods – materials and energy. One of those roundabouts that pumps water or generates electricity would be essential (kids have so much untapped energy!)

As it was, we had to stick our heads right out to get the Trust to approve the rainwater storage and recycling systems

And the use of 100% recycled aluminium roof sheeting on the roofs.

Did the design include for any development of the outdoor play area or did you work with what was already there?

> The playground was already there (my design for the landscaping had been implemented in a previous year – the circle with the tree etc)
>
> The jungle gym was existing
>
> The sandpit area was designed as part of the project, and the new paved area extending off the wet play area – experience had showed that the grass would not grow there

The indigenous gardens in the school are a special feature of the school, how did this impact on your design. Also please can you give some background to your involvement on this:

> I was involved in the first Indigenous Garden Project at the school – when my kids started there, there were only exotic shrubs, a few struggling trees and lawn.
>
> The soil is very difficult (clay – Dwyka tilite), but certain of our endemic species thrive in it – e.g. erythrina, aloes, dietes etc
>
> We tackled one courtyard at a time thereafter, and work continues on expanding the Indigenous Gardens
>
> The berm project was carried out by the parents, based on a design done by one of the parents who teaches Horticulture at DUT, and who became involved in the project.

Observations.

The setting is ideal for encouraging the relationship between indoor and outdoor learning.

The plan form provides a courtyard of which one side is formed by the site boundary and bank. The outdoor play area is contained in the courtyard space. The site boundary provides a natural edge which gives the space a sense of Place. It provides for both adventure and protection (security.) The aftercare facility which accommodates the Gr R and Junior Primary section of the school shares the Outdoor play area. This facility maximises the outdoor experience, with a wide covered walkway with built in seating, along the edge. The only internal aftercare accommodation consists of a room that fits the maximum number of children on the carpet to watch a movie on rainy days.

An existing Gr R classroom was fitted to provide for role-play or fantasy play, with a built-in kitchen, dress-up area etc. This accommodation was stipulated by the trust funders. The new classrooms and ablutions were designed to fit between this Fantasy Room and the existing school. The area in front of the ablutions contains a wider corridor which is intended to accommodate the wet-play area. The architect stated that she would have preferred to have made the class rooms bigger, but were constrained by the available space.

The classrooms have a carpeted space within the floor.

The buildings are simple brick construction with ample glazing and corrugated sheeting. The covered areas have timber structure. The building forms a background to the children's activities. The colour schemes provide subtle nuances.

Observation of children: The children were notably at ease in their environment even though they started school less than a month ago.

Photographic review.

Figure 127 Covered Area provide eating space. MG   **by Author (2016)**
Figure 128 Wider covered area as construction of play area with built-in storage in background. MG by Author (2016)

Figure 129 Additional Classroom for creative play. MG   **by Author (2016)**
Figure 130 Roll Play in the fantasy Room. MG   **by Author (2016)**

Figure 131 Water play tray in covered area. MG   **by Author (2016)**
Figure 132 Sensory Play display on low level counter. MG   **by Author (2016)**

Figure 133 Creative activity on hard area of floor and display boards. MG   by Author (2016)
Figure 134 Carpet Inlay for floor activities and notice board for display on walls. MG
by Author (2016)

Figure 135 Built- In Concrete Benches on Classroom walls. MG   by Author (2016)
Figure 136 Extensive Jungle Gym provided through parent involvement. MG   by Author (2016)

Figure 137 Outdoor Play Allowing children to explore. MG   by Author (2016)
Figure 138 Sensitive Interface between garden and Covered Area. MG   by Author (2016)

Figure 139 Indigenous Garden in front of Classrooms. MG   by Author (2016)
Figure 140 Outdoor Play with variety of different opportunities for play. MG   by Author (2016)

Figure 141 Play area provides places for secluded play with surveillance possible. MG   by Author
Figure 142 Wet Play with low level sinks and storage below. MG   by Author (2016)

Figure 143 Outdoor garden provide variety of affordance. MG   by Author (2016)
Figure 144 Limited display on external walls. MG   by Author (2016)

Figure 145 Aftercare Reading / Play Pavilion. MG   source Lead Architects (2012)
Figure 146 Aftercare pavilion Carpet inlay floor activities and comfort. MG.   source Lead Architects

Figure 147   Aftercare Pavilion with direct connection to covered area as primary play space. MG source Lead Architects (2012)
Figure 148 Lush Indigenous Gardens between Gr 1 and 2 area. MG   By Author (2016)

4.4.4 CONCLUSION:

The role of the natural environment in this project is invaluable. The quality of the total environment as a place and learning experience is evident both form observation and the positive feedback of the teachers. The architecture and the natural gardens are in complete balance in this environment and stands in contrast to the experience of the preceding two case study sites.

The simplicity of the architecture allows for the built form to become a background, it does not impose but achieves a sense of place with the natural gardens.

4.5. SITE FOUR: INGANE YAMI CHILDREN'S VILLAGE ECD, SHONGWENI VALLEY, (2016)
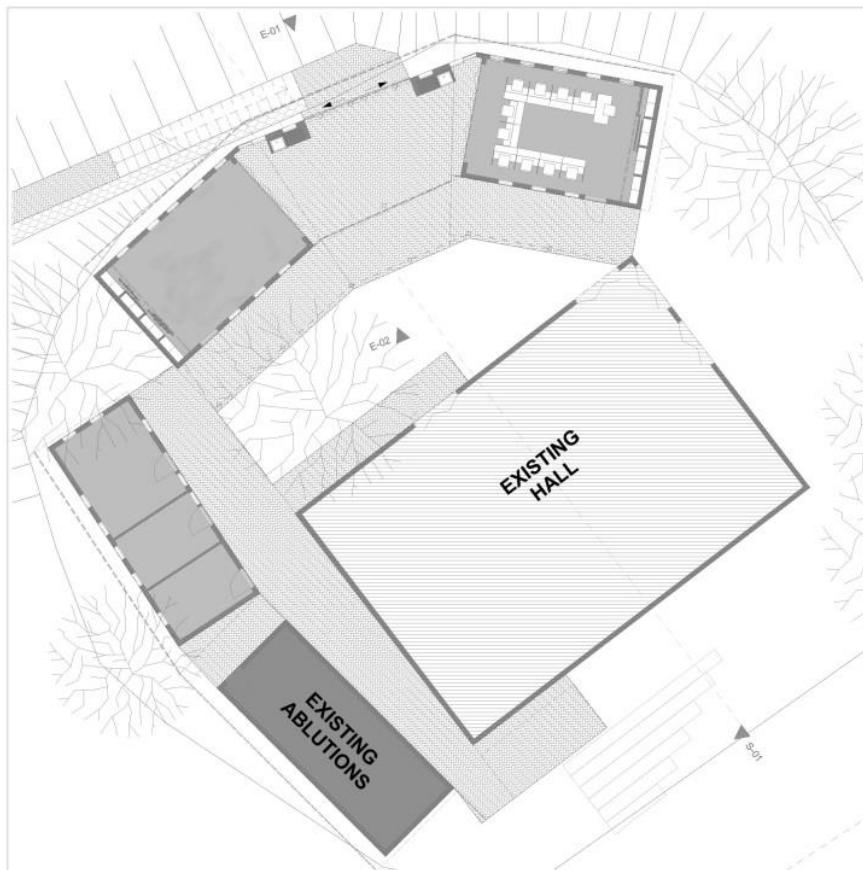
4.5.1 INTRODUCTION

- The school forms part of a Foster Village developed by a Church based in Kloof. The school will include an ECDC for children from 2-5 and a school from Gr R to Gr 12.
- The children who attend the school are developmentally deprived and (subsequently) may have learning difficulties.
- The school is a unique example as the chosen curriculum requirements are different from the main stream education system and allowing children to progress at an individual pace. A further differentiator is the requirement for flexibility, as the composition of the school population will fluctuate depending on intake into the foster homes. The approach in the overall village design has been to use innovation and responsiveness to site and climate.
- This project is being developed as part of the research process and provides the opportunity to include some of the principles learned through the research. The

architect for the project is my husband, which allows first-hand insight into the process.

The diversity of users, socio-economic levels, funding sources and contextual considerations of the sites provides for a broader understanding of how the architectural design of quality environments for children may be achieved.

4.5.2 LOCATIOND AND BACKGROUND

Ingane Yami Children's Village is situated in the Shongweni Valley near the Shongweni Dam and is visible from the N3 travelling from the Marianhill Tollgate towards Shongweni.

The surrounding area is a mixture of tribal land with lower density residential homes, agricultural sites and industrial parks. The Giba Cycling Park is also visible from the site.

The site is located on a steep slope and is exposed to wind on most days. The area is located higher than Durban which provides for a micro climate that is a few degrees lower in temperature on most days.
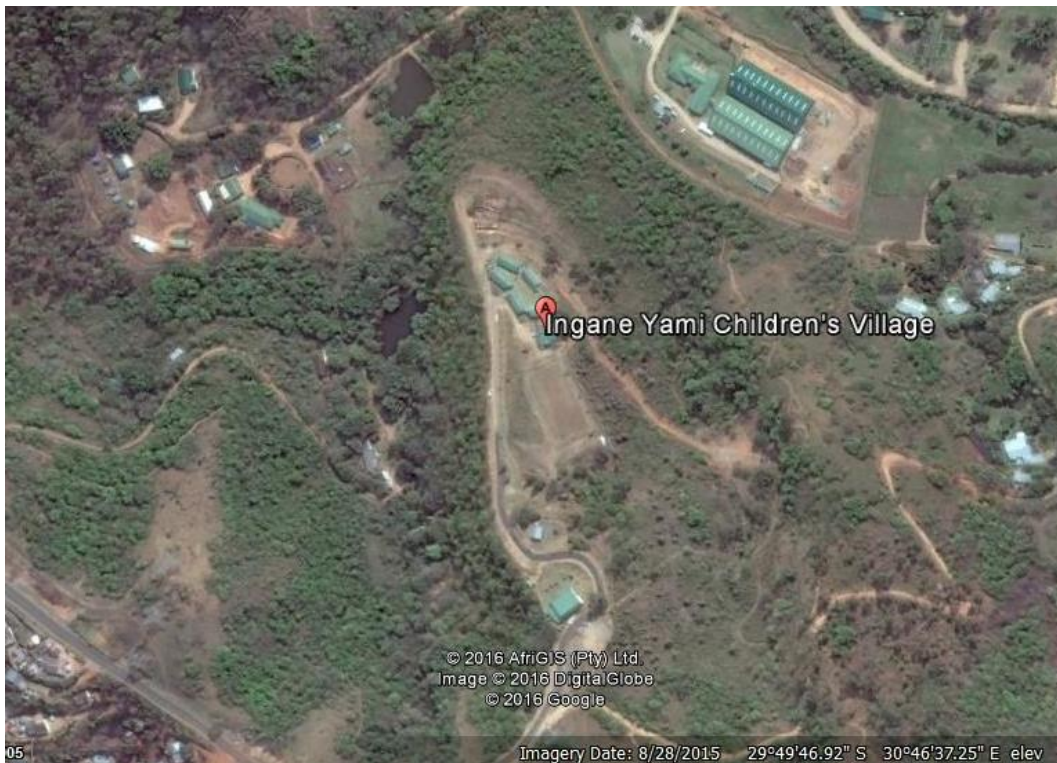
Figure 150 Ingane Yami Village Areal View   source: www.googleearth.com (2016)

The site is set in a natural landscape with minimal impact from any other development. The views from the site are of the surrounding landscape. Some noise pollution from the N3 highway is experienced.
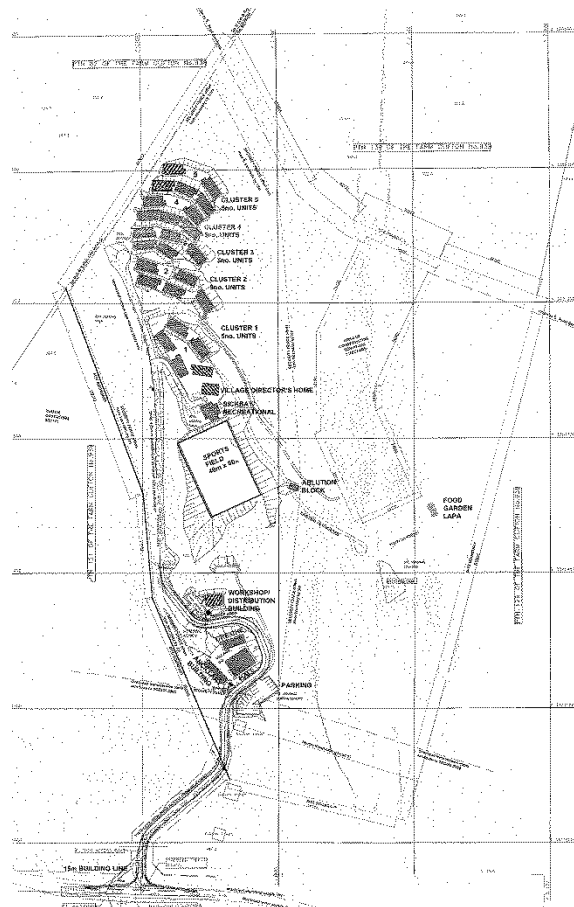
The Village was first established in 2009 and is designed to grow incrementally over time as funding becomes available and as more foster mothers and children are ready to be placed in the village. The village will provide permanent foster homes to orphaned children in the village. A Community Hall is situated near the entrance to the site where a Church serves the local community of Dassenhoek. The local community are from a low socio- economic environment with evidence of social ills due to poverty and unemployment.

The Ingane Yami Village is based the same Village Model pioneered in Uganda by American missionaries, as is the LIV Village (Site 2). The setting aims to provide a non-institutional holistic model of care for children who cannot be cared for under natural family conditions.

The Village relies on funding from donations and volunteers to provide services of various kinds.

4.5.3 INTERVIEWS AND OBSERVATIONS

General description

The Ingane Yami Village was originally designed to include only a crèche as part of the overall Village design. The proposal was that the children would be placed in schools in the surrounding area. Since the placement of the first children, it has become apparent that this is not ideal as the children need to be transported between the Village and the schools, which are all some distance away. The other important factor was the developmental delays that children presented when they started their schooling. The decision was then taken that a school system needed to be found that would accommodate the children's education on the Village site and that the children should be able to progress at their own pace in order to accommodate individual developmental stages.

The proposed school (at this stage) will use the Accelerated Christian Education system which allow for individual progress.

For the purpose of the case study, the approach to the overall Village Design is mapped as a background to the process of developing the school design with first two classrooms is in more detail. At the stage of the research the NGO had already accepted the Design Brief for the whole school, which included the siting and organisational structure. The redesign for the original crèche situated as part of the Village Square with the Community Hall is approved by the client and will be constructed soon. The design of the school buildings will follow the principles already established in the design of the Village houses, Community Hall and Resource Centre.

The school is currently operating in two areas on the site. The ECD part, dealing with children up to 4 years of age is comprised of a morning crèche facility which is accommodated in a temporary timber structure, while the Children in Gr 1 to Gr 3 are accommodated in a make-shift classroom in the Resource Centre. A designated play area has been developed for the school, and the crèche has an outdoor play area with jungle gym.

The new design provides for an ECD classroom and one other classroom that could accommodate children from Gr R upwards. The incremental growth of buildings needs to allow for the incremental increase of children being placed in Homes. The design allows for maximum flexibility to incorporate possible changes over time and in the use of buildings other than for the school activities. The first two classrooms are positioned adjacent to the Community Hall forming a small Village Square between the buildings.

Figure 154 Conceptual Village Plan. IY   source Werner Cloete (2010)

Figure 155 Conceptual view of Community Hall and crèche. IY   **source Werner Cloete (2011)**
Figure 156 IY Conceptual design Community Hall   **source Werner Cloete (2011)**
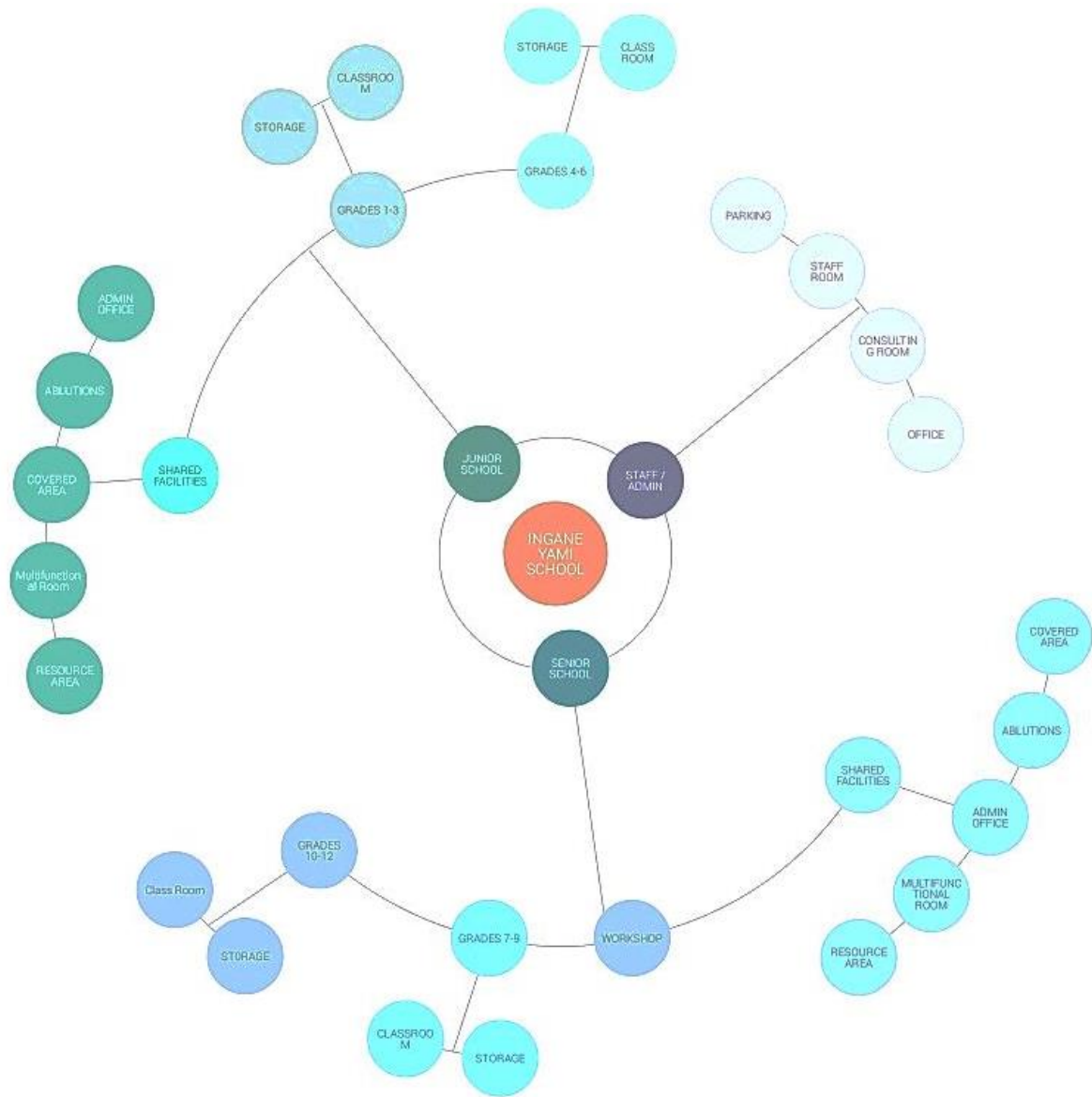
Figure 157 Planning & relationship mapping of School Design. IY   **source Werner Cloete (2015)**

Figure 158 Conceptual layout of school. IY   source Werner Cloete

Interview with Debbie Smith Foundation Phase Teacher.

The purpose of the discussion was as background to developing the Design Brief for the Ingane Yami School.

The proposed school for the Village will accommodate 150 children max, 8-10 staff (approx 20 of the 150 will be in crèche.) The school will grow incrementally as the Village grows. The current school consist of two x 9 year olds, two x 6 year olds and a crèche with nine children. The policy at the Village is to take children at the age of two. If the child has an older sibling they will be placed in the same Home. Each house consists of a mother with 6 children. A Cluster in the Village consists of 5 homes, and the complete Village will include 5 Clusters.

Considering this process it seems that the first Cluster will have the oldest children.

There may be gaps in the age groups (unlike in normal schools that have Gr R to Gr 12 and a specific number of children per group). The school will need to allow for flexibility in order to accommodate the changing population.

The younger years (Gr R, 1 and 2) need more space to allow for group (carpet) activities. The forming of letters with body movements and songs etc. is done in these spaces. The classrooms need ample display space for teaching material as well as children's artwork. Art activities are included in the children's activities and each room will require a reading/book corner.

Children's desks (and an office area) need to have acoustic separation from group areas. A marking station is also required in each room for the children to access the marking memorandums and complete the marking of their own work.

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Each child will be enabled to work at his/her own pace within the group, allowing for same age children to engage at different levels. Specifically at the younger stages the progress of children is dependent on conditions of arrival at the Village, and whether or not they were previously exposed to schooling and/or the English language. All school work takes place in English.

Generally, the children do present developmental delays due to the social situations they were exposed to prior to entering the Village. The children have often been neglected, abused and malnourished, or have received minimal attention within an institutional place of care. The children's development in all areas will be affected by their background. The need for a quality environment that can support their healthy development is imperative.

Debbie considers the outdoor play environment an important part in the children's learning. Currently, the Village features limited play equipment, but the children often use what is there. They climb trees or construct dens with loose objects they have found on site. Due to the nature of the pedagogical system requiring children to sit quietly alone at desks most of the time, outdoor play areas are important and the full potential of this needs to be explored (natural terrain, banks, water, stones etc.) Shading of outdoor areas is imperative; this can include the planting of trees.

Figure 159 Lesson in crèche with play equipment and toy storage along walls. IY by Debbie Smith (2016)

Figure 160 Children with teaching material pinned up on wall. IY   by Debbie Smith (2016)

Review of Village design discussed with Architect Werner Cloete (*XO Consultancy*)

The Design Brief was developed by Researcher in consultation, with Werner, with the intention of applying aspect of the research into the Project Development. The Design Brief is included as Appendix V.

Questions

Design process: Describe how you developed the approach to the design. What documents or other villages/schools were used to establish your design approach. Or was the design based on previous experience in similar buildings?

> The project was, from the outset, based on the Watoto model that has been successful in the African context and was originally started in Uganda. Watoto has a developed a guideline for replicating their Village Model, and this was

used by the client, giving high level guidance to all aspects from start-up to running of a village. The Guideline gave limited guidance in terms of design, with a strong focus on the financial, administrative and operational side of running a village.

The Project Brief was drawn from a combination of the Watoto model, the client's Mission Statement and accommodation schedule, and the local context.

Interaction during the design process has mostly been with the client's representative, who is also one of the Board Members of the Restoration of Hope Ministries, the Public Benefit Organisation responsible for establishing the Ingane Yami Children's Village.

Project Description: Conceptual approach, relation to context, form making, choice of materials etc.

The design process was very much rooted in the concepts of Family, Community and village.

The physical constraint of the site being mostly steep banks had a significant impact on the overall layout of the Village and each building's particular footprint on the site. Building costs and long term maintenance of each building were also a major factor in developing the design and utilising the appropriate building technology. These building technologies had to be carefully selected and applied across the range of building to establish an overall Village identity, while still being functionally appropriate for specific uses.

Local trade knowledge and skill levels were taken into account to limit labour expenses. A view of local building context being more informal in nature was also adopted, using primary elements of form to develop the design character with an inherent familiarity to its surroundings and people.

The site was very steep, and almost impossible to develop for a complete village with ordered clusters of buildings, posing the main challenge which was addressed by developing the clusters along contours in a more informal manner than originally envisioned by the client.

The development had to be spread out across a large number of narrow terraces, causing a degree of separation with the overall Village. A sense of connectedness within the Village was achieved by creating communal gathering spaces along wide access stairs linking the different levels along a central foot traffic route throughout the Village.

Own evaluation: If you were to do a similar project would you approach it the same or what would be done differently?

Initially the term "to build the plane as we fly" was used to describe the approach to the project and the planning. In hindsight this is problematic as core ideas and concepts can get lost when a project is carried out over multiple phases with sporadic funding and unforeseen stake-holders being involved.

The design approach, therefore, has to be communicated and presented in more detail to enable the client to fully understand and value the design decisions that are made and avoid any short-sighted diversions.

Does the design include development of an outdoor play area, or was that not part of the scope?

The outdoor areas were not really considered as an architectural design element by the client and we were consulted only for the overall positioning of play areas within the site development plan.

If a Design Guideline were developed, what would be the key elements that you would consider including when designing environments for children?

Guidelines for designing schools in our context would definitely be beneficial in understanding best practices.

In the case of our project, the requirements were mostly determined by immediate needs and the funds that are available.

A Design Guide would assist in planning for the long term.

The Design Guide should provide a benchmark for design of child-oriented spaces.

Figure 161 Community Hall at Entrance to Village IY   source Werner Cloete (2014)
Figure 162 View form upper bank toward Resource centre. IY   source Debbie Smith (2016)

Figure 163 View of Community Hall with open space for ECD buildings. IY
source Werner Cloete (2014)

Figure 164 Interior view of Community Hall showing play with light, IY   source Werner Cloete (2014)

Figure 165 Design showing covered area with class rooms on either side. IY   source W Cloete (2016)
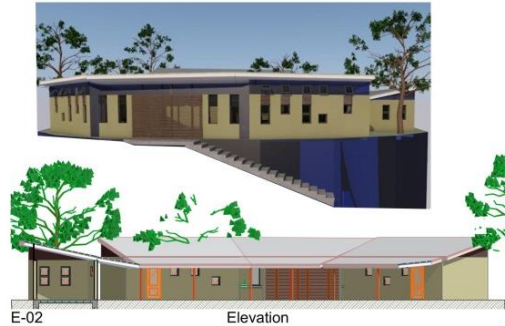
Figure 166 Design drawing of classrooms and Community Hall behind. IY   source W Cloete (2016)

Figure 167 Two houses with verandahs to enable community to thrive. IY   source Debbie Smith (2016)
Figure 168Design intentions at Conceptual stage of Design. IY   Source Werner Cloete(2010)

4.5.4   CONCLUSION

The value of this case study lies in the potential of the school project within the Village setting. The Village design indicated various parallels with the LIV site, however the contextual directives allowed for a responsive design solution. The slower progress in this project relates to an almost natural growth that could be related to the growth of a "real" Village over time.

4.6   INTERVIEWS WITH KEY INFORMANTS

4.6.1 INTRODUCTION

The selection of key interviews was intended to provide a broad view of various disciplines into the design of spaces for children. The final two key informants were the ones who were readily available and provided responses to my enquiries.

4.6.2 Caroline Robinson (Tree Tops Pre-Primary and Primary School)

The Interview with Caroline Robinson took place at the Tree Tops School campus visible from Musgrave Road. The School has two other campuses and is in the process of developing a fourth. The school currently caters for children from 2 years to Gr 3 level. The campus that I visited could accommodate over 150 children ranging between 4 -5 years, Gr R and Gr 1. The school is a private, fee-paying facility, and most of the pupils are from a high income group living in the centrally located area of Musgrave.

For the purpose of the interview I introduced the research topic and the key objectives. I also briefly explained my background in terms of education spaces. Caroline showed me around the school while she explained how the different spaces function and the reasons for using certain features. Her views are based on many years of experience, and learning through trial and error. The environment is specifically manipulated to support the pedagogical system and the general views and ethos of the school.

From the street the school is barely visible, with surrounding walls and vegetation hiding the activities of the children from passers-by. Upon entry, one discovers a lush garden and busy outdoor play area, contained by the classrooms and high boundary walls. The outdoor play area provides a great variety of activities and sensory experiences, all contained in a small area. A small indigenous garden has been created with inter-leading pathways. In contrast to the busy outdoor environment, the classrooms provide a calm neutral space, which are almost completely isolated from the outside disturbances. One of the reasons for the seclusion is due to the school's location on a corner site.

Very few questions needed to be asked during the interview as Caroline gave detailed explanations while showing me the different spaces. The information provided was clear and concise.

(Caroline's slogan when it comes to the environments is: "Keep it simple")

Caroline suggested a courtyard or U-shaped building that would allow for a protected garden and outdoor play space. The street side should not allow any views into the classrooms or outdoor play area. The office accommodation and entrance to the centre should form the boundary to the street.

The notion of simplicity is to provide a building that can form a background to the children and their development. Her view is that the internal experience should be completely separate from the outdoor experience, with the inclusion of a transition area provided by with wide, covered verandas.

The classrooms need to be completely contained with only small windows at a level higher than the sightline of the children when they are seated. The primary reason for this internalised space is to ensure minimal distraction. Walls should be painted white with grey elements, so that the artwork and teaching materials form the focus. If glazing is at a lower level, she suggested covering it with film so that the view out is obscured.

By way of contrast the outside can be painted in darker colours to make maintenance easier. At Tree Tops School the walls are painted a terracotta colour with elements of dark green to blend in with the plants and trees. Outdoor spaces should allow for a diversity of tactile experiences through play equipment and fixed elements. Natural objects need to be included as much as possible. By including indigenous gardens, children can learn more about the plants. These will also attract birds, butterflies and other small creatures. Children can take part in planting activities. Different types of climbing equipment can be provided offering a variety of challenges to optimise gross motor skills. Timber outdoor equipment offers different sorts of play activities from metal climbing frames. Ideally, the outdoor area should emphasise all aspects of respect and care for nature. By providing recycling bins, rainwater collection tanks and compost-making units, children are provided with practical tools with which to learn about sustainability issues. At Tree Tops a wormery is used to recycle all the organic waste materials.

The provision of secure storage for outside equipment positioned close to the play area is important. The final aspect of the outdoor play area is to ensure shade in the gardens, specifically in the summer months. Trees are ideal to providing both shade and the potential for climbing. If trees are not possible other shading devices should be included in the design. Artificial grass works much better than trying to maintain a lawn, especially if the facility has a large number of pupils.

In centres with a high population and limited outdoor space, play times should be staggered to minimise overcrowding. Children need to have the opportunity to run around and have access to all the play equipment.

Caroline stressed the importance of wide verandas which provide an activity space rather than circulation space. At Tree Tops these activity areas have tables with chairs, and art activities are set out for use during outdoor play time. This allows for an opportunity to include art beyond the compulsory class room activities.

Caroline's criteria for building elements return to her of "Keep it simple". She repeatedly emphasises that floors need to be seamless and easy to keep clean. She suggested that vinyl sheets are best suited as they are always at a comfortable temperature when children sit on the floor. Group areas and book corners should be

provided with loose carpets as these can be replaced more easily (carpets do get dirty with sand or mud being trampled in by the children).

The inclusion of sliding folding doors between classrooms allows for more flexibility when larger gatherings are required. Classrooms need to include lockers or pigeon holes for schoolbags and lunches to be stored inside. This safeguards the security of personal items and children can collect things from their bags while still being part of the class discussion.

Ablutions need to be close to the classrooms to ensure that children can access the toilet when needed (and adult supervision is readily available). Younger children require close supervision during these visits and it is best not to have doors on the cubicles.

Lockable storerooms between two classrooms are ideal, with provision of an additional storage cupboard in each classroom. The teacher's desk and chair should be low, at the level of the child rather than normal height, as this over-emphasises the teacher's position of authority.

Carol stated that murals painted onto walls are too static. Children's artwork is better as it gives them ownership and provides for constant change. Thematic displays with posters can also be provided to form part of the curriculum.

Class sizes are kept to 20 at 4 -6 years, including the teacher.

Class sizes for younger children are also 20, but a teacher and a teacher's assistant are included.

4.6.3 Derek van Heerden - *East Coast Architects*

The original intention was to use the Seven Fountains School in Kokstad, design by *East Coast Architects* as a case study as it includes a dedicated specifically -designed setting. The school is very far from Durban, and for this reason the case study could not be completed.

East Coast Architects has become known for their architectural approach based on a bottom-up process, where community involvement is used to establish ownership. I was first introduced to their work in 2009 through my involvement in the design of the outdoor play areas at Seven Fountains Primary School, in Kokstad. The design for this school included a very thorough community involvement process that included workshops with the children, skills surveys in the local community, and training and employment of women to make adobe bricks. Local tradesmen and materials were included. The design process involved regular presentations to the school, of the design and its development to help users understand decisions and provide input in terms of their needs. As part of my involvement on the project we presented the proposal to the teachers. Our reception at the meeting was very positive and much appreciation was

shown by the school teachers as they felt acknowledged in the process. They accepted the design the way it was done, probably because they have never been exposed to such involvement, or play areas that are designed rather than just left as tarmac or dirt.

A notable aspect of the work by *East Coast Architects* is that their designs attempt to be fully responsive in terms of both the context and the people. As well as the workshops and group discussions, their design process includes field surveys and if possible the appointment of an environmental consultant to ensure the optimum climatic response. The inclusion of renewable energy sources, rainwater harvesting and vegetable gardens forms part of the design process. Cultural practices are included with local craftsman or woman getting involved in aspects of the design.

The architecture developed by *East Coast Architects* is simple but offer innovative solutions that meet the minimum requirements of the Department of Education. The actual layout and design is developed with the school community – the learners, teachers and parents.
Derek explained that the Seven Fountains School is functioning well in most respects, to the extent that children prefer attending this school above others in the area. The school has experienced some problems caused by Union involvement in terms of appointment of a new Head.
Some vandalism has caused failures in the renewal resources - for example one of the water tanks was punctured after being used for target practice.

Apart from these minor issues the school is performing very well: the first graduates from the school are coming out of universities around the country (and it has only been 10 years in operation). *Creating Schools* offers a number of bursaries to graduates from only two schools – this one and Vele Secondary School, in Limpopo.

Derek van Heerden and I discussed some specific aspect s of Seven Fountains Primary School with reference to the questions posed in the case studies of other school.

What were the lessons that you learned from the process of community involvement that you followed?
> Firstly, our ideas of participative design (community involvement you call it) have arisen from perceptions of a mismatch between people and buildings expressed by them in high levels of vandalism and neglect. No matter how clever we, as architects, are in terms of robust materials and design, if there isn't buy-in (ownership) the facility will fail. This lack of ownership springs from two historical strands (in my mind). The first is apartheid and the "othering" that was part of the system: authority decides what it is that you need and will get. The second is the traditional form of feudal authority inherent in African culture: the Inkosi decides where you live, and what you think! To invert this is critical

for the success of our buildings. Many times, when we came to committees, teachers, kids - showing them what we were doing and asking for their thoughts - typical replies were – 'it's fine but thanks for asking; we've never been asked before!'
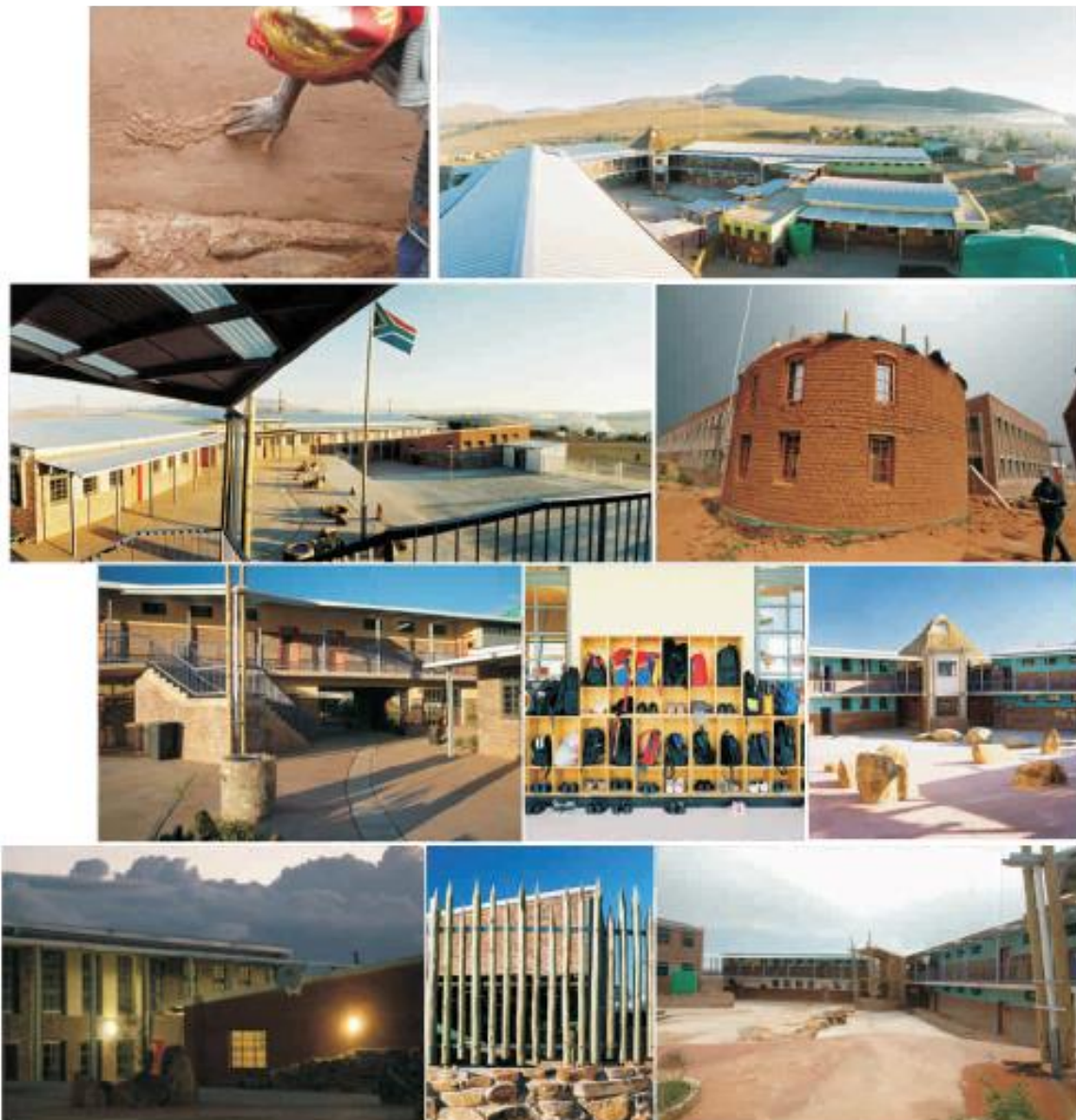
Would you make any changes to the design in hind-sight?
     To do "one off" schools is problematic – we should be looking at whole 'nests' of schools. When we built Seven Fountains it became so popular that kids were being taken out of other schools in Shayamoya to the point where two teachers lost their jobs! Talk about unintended outcomes!

We would also look to integrating food gardens into the school proper rather than have them out on a limb as they are at Seven Fountains. At Vele we achieved a bit of this where the gardens are on 'exhibition' as you enter the school. This has been quite successful. At Cornubia we've had to back off from this: the densities are quite extreme - three schools (two primaries and one secondary) on 5.2Ha

There are three classrooms at Seven Fountains that, due to the layout and the need for external courtyard space, face North West rather than North. They are hotter in summer and colder in winter than the perfectly (north) oriented classrooms.

Has there been any feedback from the school suggesting further changes?

We have done some follow- ups and users have been asked, but it's difficult to get anything useable in this way. What are way more instructive are all the sensors/loggers that our mechanical engineer (Paul Carew) installed that measure temperature inside, outside, in the walls, in the roof. This has led to re-thinking thickness and nature of insulation. At Seven Fountains we were debating at the time whether we should insulate under floor slabs. We did this for some classrooms and not for others, and the temperature readings suggest that it made no difference. We also log and monitor water usage. Paul, from his office in Cape Town, can detect leaks in the system before they become evident at the school! This is real feedback! And the loggers are seriously cheap!

Do you think that there would be value in developing a design guideline for the design of schools in an attempt to improve the current utilitarian approaches?

Steve, the other partner at *East Coast Architects,* got some way down the track working with CSIR and GBCSA to develop guidelines for 'Green Schools' – it eventually ran out of funding and in essence the idea is problematic – we hold that each school should be unique – a response to site, climate, culture, economy, skills, available materials and appropriate technologies. At Vele for example they have embraced the idea of Biogas whereas local in Kwa-Zulu Natal local people are emphatically opposed! We baulk at "one size fits all" standard plans and guidelines.

Figure 170 Gr R Outdoor Play area at 7 Fountains Primary School
source: East Coast Architects (2010)

4.6.4   CONCLUSION

The insights of years of practice and involvement in the field of early childhood development and architectural design for children embedded in the feedback from both the informants provided the research with a well-grounded connection with real issues. Most prominent in the approach advocated in both interviews is the return to basic principles and a requirement for a responsive design that could be both contextually appropriate and user defined.

4.7 CONCLUSION

The Case Study report provided a detailed account of the interaction with each school: with teachers, the architect and through personal observation. Throughout the research the approach was to connect the key concepts of Responsiveness, Third Teacher and Community, with what existed in reality. The gaps that were identified in terms of the application of the Rights of The Child were also considered, together with the implications of South African policies related to ECD practice.

Although the interviews with key informants were limited to only two, their experience in the field of Architecture and Childhood Development has provided confirmation of what presented in both the literature review and at the case study sites. The interviews are specifically important in providing a balance to the possible gaps in the case study sites.

- The inclusion of a more detailed analysis of the architectural elements will be required to inform the writing of design guidelines. Aspects of colour, floor finishes, positioning of lockers and children's pigeon holes, provision of ablutions, and optimal use of outdoor areas should be included.

- The case study sites were all operating with a number of children enrolled that was well below their capacity. The Tree Tops School has implemented specific changes to their environment and how it is used, due to the large number of children accommodated within a compact site. This practice relates to similar initiatives at schools in the UK where play space is often limited.

- The position of the Seven Fountains School within a context that can be described as rural, poor, and with high unemployment rates, provides a stark contrast to the context of Manor Gardens Primary School. The inclusion of the background of the design of Seven Fountains School gives the research more validity.

- The sustainable practices included in the design of Seven Fountains Primary school confirm the value of responsiveness to climate, and highlight the need for research with a focus on "Green" practices.

- The information in terms of the development of guidelines for 'Green Schools' will be valuable in relation to this research, and how it impacts on existing practices.

The following chapter of this research report will provide the analysis of the case study in relation to the literature review and the research problem.

CHAPTER 5

ANALYSIS AND DISCUSSION

5.1 IDENTIFYING THE CHALLENGES

5.1.1 Limitations of the data

Key issues in the process of developing quality environments for children appear to have been successfully highlighted by the case study. These issues are related to perceptions of the value and the role of architecture plays in society.

The case study analysis has not made a detailed analysis of the physical qualities of the architecture, as the focus of the analysis was on the process, rather than the completed outcome. This could be seen as a limitation, and more detailed research is required in order to formulate more appropriate minimum standards, as those currently in place are a reflection of the inconsistency and contradictions between the government departments.

An additional limitation on data collected resulted from the fact that none of the ECD centres in the case study was working at full capacity in terms of the numbers of children. The relationship between the environment and children is related to the available space determined by density. The inclusion of ECD facilities that are operating at full capacity will be beneficial in testing the findings presented in this report.

Finally, the interviews with the teachers were restricted to one teacher, apart from at Site 3: Manor Gardens Primary. This made it difficult to achieve a balanced perspective. The period of engagement with staff was also limited, and did not allow for establishing relationships that enabled any level of community participation.

The research would have benefited had a longer period of time been allowed for the case studies. Specifically, the inclusion of data from ECD centres in rural areas would have been complimentary to that collected from the more urban context that was presented.

The case study had to be contained to comply in terms of the scope and expectations of a Research Masters.

5.1.2 Key concerns

- Not all architects have experience in the design of spaces for children. If a consultative process is followed and it is possible to understand the requirements in detail, and the long term functioning and role of the environment can be established, it will be possible to achieve quality design. The outcome will depend on the process and level of engagement. A superficial process will

achieve a sense of ownership, but some requirements could be incorrectly interpreted.

- The current Government policies present different requirements for the same typology of building. It seems to be the choice of the department that is most involved, to implement the requirements that relate to their field. This process is due to a lack of implementation of an integrated strategy.

- The minimum requirements provided by The Department of Social Development in terms of ECD provision do include some key aspects that need to be implemented. It was noted that this document is not always consulted by the service provider or the architects involved in the project.

- The teachers, NGO providers and others involved in the establishment of ECD environments lack an in-depth understanding of the qualities and requirements for maximum benefit to childhood development.

- In the lower socio-economic sectors there tends to be a focus on childcare rather than child development. The need for control, safety and security is emphasised, which negates the opportunity of creating a child- centred environment.

- The importance of Play and exploration as the primary methods of development for children are grossly misunderstood.

- The management of spaces by the teaching staff or owner of the building (NGO etc.) impacts on the success of the architectural intentions. It was noted that the architect's intentions in the design could be negated by changes implemented after occupation of the building.

- The provision of outdoor spaces and landscaping is not recognised in terms of their value towards creating a whole environment.

- ECD practitioners and teachers see quality environments as safe, secure and easy to clean. Only when prompted on specific detail could they voice a specific opinion on the matter.

5.2.   CASE STUDY ANALYSIS

The analysis of the case study took the form of a continuous process which integrated the conducting of field work; writing up of interviews, observations and photographs. The case study reports on the four sites within a thematic format and is presented in parallel as part of the method of analysis. Underlining this process are the architectural analytical criteria, highlighted in the content of observations, and photographic essay of the report. The concepts of Responsiveness, the Third Teacher and Community were evaluated at the end of this process. Contained in this Chapter as the more formal process is the analysis in terms these concepts.

5.2.1 Responsiveness

Responsiveness describes how the environment should respond to both context and people.

Site one: Qalakahle ECD Centre, Mansel Road, (2015)

The architects were provided with a difficult context and limited interaction with the actual client. The challenge was exacerbated by a very limited budget and a very small site.

Response to the immediate context is apparent in terms of choice of materials. Steel and corrugated sheet cladding relates to the converted containers used in parts of the market.

The decision to make the building colourful stems from the idea that children respond positively to colour, giving the space the appearance of being playful. The intention was also to provide visual stimulation through the use of colour on the building, as well as the Perspex woven into the fence.

The small site and north orientation limited the available options for positioning the building footprint. The design does not provide a protective environment and sense of Place is somewhat lacking.

The design responded to a requirement to provide a community meeting-space by providing a linear floor area with no subdivisions. The outdoor play area has a transitional space which functions well. This could be ascribed to the slightly reduced scale of the canvas shading device installed as well as the use of timber for the structure. It is difficult to establish if the popularity of this space is due to the preference of teaching staff or the children.

The architectural element in the design is bold and well-defined. The environment provides no natural features.

The design responds more to the availability of donated materials than to making a Place for children. The focus on surveillance and security seems to be based on the premise that only two teachers would be appointed to care for 70 children, including 10 babies. The concern here is that the architect and NGO seemed unaware of the stipulated minimum number of staff required per child, for the various age groups. At the time of the research 40 children were enrolled and 6 staff members were present.

The design seems to provide very little in terms of comfort for the staff. No rest area or lockers for personal belongings were noted.

Some of the design decisions were based on pre-conceived notions of how the staff would function. For example a separate office was not included, as it was thought that if there was an office the staff members would be able to spend too much time away from

the children. This may be true, but now the much needed store room has been converted into an office.

The only attempt to respond to the local culture was to implement woven Perspex into the fence.

Site two: LIV Village ECD Centre, Verulam, (2014)

The design has attempted at a responsive solution in various ways. Contextually the ECD Centre is positioned centrally within the Village, near the Village square. The school is situated below the ECD Centre. The whole village is walkable with designated routes to get to the ECD Centre, forming part of the design.

The aim of the design was to provide a sense of Place for the children. The buildings with their verandas wrap around two courtyards. The lower courtyard, which is more open, is for the older children and faces the school side of the site. The courtyard for the younger children is smaller and at the same level as the entrance.

The classrooms have been designed to consider climatic conditions in terms of orientation, and allow for cross ventilation. With the oversized sliding doors, enough daylight should penetrate the rooms to avoid using electrical light fittings.

The design implementation of both the Village and ECD Centre were affected by availability of funding. For this reason some of the key design elements have been excluded. An example is that the routes that connect the houses with the ECD Centre are not clearly defined. Trees are indicated to line the routes, but these have not been planted.

The ECD Centre design shows the roofs over-sailing the ends of the building on all four sides. These covered areas have not been included in the implementation. The addition of the covered areas to the older section, specifically, would create positive spaces.

At present the classrooms do not achieve the potential allowed for in the design. In all the classrooms the doors towards the outside smaller enclosure are not being used. In some rooms furniture and equipment have been positioned in front of the doors.

The thematic classroom use was not envisaged by the architects. The reason for the system is to combine all the resources of one type in one area, and avoid duplication. This system would function better in a design that is not strictly classroom-based.

The design did not anticipate possible use by children under the age of 2 years, who require an area for nappy changes, and a milk kitchen.

Site three: Manor Gardens Primary School, Manor Gardens, (2013)

The design approach, in terms of context and consultation during the design process, provides an ideal framework for the development of a responsive design. The

completed environment reads as an integrated environment, rather than an adjunct to the existing structures. This was achieved through a very careful analysis of the built fabric, complemented by the dominant natural environment of the existing school. The positioning of the Gr R facility is sensitive to the existing building and creates a lovely secluded area, providing a nurturing and stimulating place for childhood development.

The environmental response of the buildings takes advantage of natural daylight, optimal cross- ventilation, as well as rainwater harvesting. The roof covering the wet play area was specifically designed to let in more light. In other areas of the building, similar innovative designs were included, to form a nurturing learning environment.

The teaching staff responded with enthusiasm to the design interventions and showed their appreciation for the effort made by the architects to include their needs and concerns in the design.

Site four: Ingane Yami Children's Village ECD, Shongweni Valley, (2016)

The design approach has been developed around the notion of being responsive to the unique conditions presented by the physical context; the Village setting, and the pedagogical setting.

The architect's intention with the Village was to employ innovative architectural solutions, to provide quality environments within the restrictions imposed by the steeply sloping site, and financial constraints. As an example, the original brief from the client was for the houses to have a more traditional square plan form, as this is what the Watoto model provided. The house plan and cluster layout were adopted to achieve the same principles on the narrow terraced sites presented by the slope. Through this change in design the opportunity was taken to review the design from an environmental performance perspective. A split roof was included to achieve an increase in daylight, as well as increased ventilation.

The positioning of the school, staggered on the slope between the sports field and the Community Hall, is determined mainly by the availability of buildable land. This position provides a connection between the houses and the Community Hall, which currently seem removed from each other.

The school design indicates a clustering of classrooms and covered areas, which will be connected with stepped outdoor spaces, and terraces forming the play areas.

The response to the pedagogical system and almost unpredictable age range spread, requires the design to be more flexible than a traditional classroom. This has been considered, specifically, in the revised design of the first two classrooms adjacent to the Community Hall. These rooms may be used for purposes other than the intended crèche and Foundation Phase classrooms. Attendance at church services which take place in the Community Hall has grown exponentially, and different services may be included to

serve the community in the future. The classroom design allows for this flexibility, and potential changes in future use.

Careful consideration has been paid to technical details and use of materials, in response to the poor standard of workmanship by tradesmen employed on building projects, to ensure that the end product will be of a high standard.

Collective analysis:

The Case Study has shown that a degree of responsive design is included in the development of environments for children. The degree of responsiveness is dependent both on the available funding, and the implementation methods.
Each of these sites had identifiable challenges that could only be resolved through a responsive and innovative process.

The individual case studies and interviews with key informants have indicated that the implementation of design guidelines, for the design of ECD environments, would be a beneficial resource. The architects indicated that a guide would assist both the client and the designer in developing quality environments. The content of a Design Guideline would need to include examples of best practice, as it is often difficult to move beyond a blind repetition of what has been done before.

The interviews with key informants indicated that a certain level of humility is required on the part of architects. Teachers appreciate being consulted as a part of the design process, and the end result leads to a better quality product. There is an over-arching agreement that the design needs to be responsive to climate and, wherever possible, should include renewable resources.

5.2.2 Third Teacher

Third Teacher defines the environment as a providing silent lessons by being child centred, innovative, allowing for exploration and related to the curriculum

Site one: Qalakahle ECD Centre, Mansel Road, (2015)

The design offers an attempt at providing a stimulating environment, with the inclusion of colour, and the woven Perspex on the fence. The structural system that is exposed has the potential to provide some learning opportunities.

The ECD manager has had murals painted to brighten up the fence along the railway line.

Plants were included as part of the outdoor area, but the architect explained these had been removed by the staff. The natural environment is at present very limited.

Some of the affordance provided by the environment is unintentional, for example some of the children were observed climbing onto the timber structure forming part of the shading device. In the 0-2 year area, some babies were using the lower shelf of the cribs as a climbing area.

The NGO Manager's little girl (who was present at the first visit) also observed investigating the grids over the drainage areas.

It appears that without the provision of toys, very little opportunities for exploration are included in the design.

Site two: LIV Village ECD centre, Verulam, (2014)

The environment is not designed with the intention of the Third Teacher in mind. The environment functions as a background, and relates to the purpose of place-making.

The sensory activity boards that have been placed along the wall of the ramp do provide for exploration and the children interact with the different elements on display.

The outdoor area has not been provided with any planting that could perform as the Third Teacher. The two trees, however, one in each courtyard, provide shade as well as the potential for exploration.

Perhaps the best way to understand the Third Teacher in this architecture is in its subtle nature, that it is not imposing.

Site three: Manor Gardens Primary School, Manor Gardens, (2013)

The combined internal and external environment of the Manor Gardens School can be read as the Third Teacher. The strong presence of the indigenous gardens is used by the teachers for many learning opportunities. The notion of experiencing what is learned, rather than learning through abstraction, is evident from the feedback given by the teachers. The teaching staff embraces learning through the environment in a way that allows the children the required freedom to learn through exploration.

The addition of a dedicated Fantasy Room tremendously extends the possibility of learning through play. At present, the amount of available floor space is ideal; as the children are not constrained when it comes to the sharing of space.

The outdoor play area offers a great variety of activities which can be explored by the children. The play area is also used by the Gr 1 children.

Site four: Ingane Yami Children's Village ECD, Shongweni Valley, (2016)

The potential of the environment as Third Teacher has been taken into consideration in the relationship between classrooms and outdoor spaces. The natural setting of the Village affords the children an immense variety of stimulating activities. However the value of the natural landscape would be more accessible with the inclusion of structured landscape elements connecting different spaces. As an example, the design provided for terraced seating under a tree in the completed house cluster, the intention of which was to provide a place for family groups to gather together.

The pedagogical system requires a specific environment in most of the classrooms, where each child from Gr R upwards has ownership of a desk. Within each classroom there will be a combination of individual place and shared place. The Third Teacher in this instance takes the form of ownership and responsibility.

The ECD Centre currently operates in a more traditional manner, with thematic play equipment and a specifically defined internal playroom, and separate outdoor play area. With the new classroom design the interaction between inside and outside will be stronger and positioning of the ECD Centre adjacent to the Community Hall space will provide use of the hall as an additional learning environment.

The most important aspect of the design approach to the school is its setting within the Village. As stated in the Project Brief the whole site is seen as a learning environment. The Village (and school) aim to provide a sense of Place and healing, over time, to the children placed there. This environment needs to be nurturing and supportive, to allow these children to return to a level of normal positive development. The physical environment needs to support the relational and learning environment.

Collective Analysis:

Of the four sites, the only one that attempted in a visible way to create a building that is also a Third Teacher, is Mansel Road. The architect specifically included colour as a stimulus, to allow the building to be identifiable as a place for children. The inclusion of coloured strips, on the fence enclosing the play area, increased the potential of the building to create a stimulating environment.

At LIV the approach is to provide the environment as a background, and stimulation in a more subtle manner. As an example, the small pockets of space outside each classroom have the potential to be slightly more secluded garden spaces.

The covered walkway and ramps were introduced to form a divide between the older and younger children, to allow each group a courtyard enclosure. The ramps, which were necessary because of the change in level, have become a stimulating environment with potential/affordance for climbing, running or riding bikes. The architect also anticipated that the area could be used as a performance space.

A focus of all of the designs was a wide verandah or covered areas; between spaces, linking indoors with outdoors.

The designs each included a direct link to integrate inside and outside areas by means of: double doors, over-sized sliding doors, or sliding-folding doors on a whole length of room. Each architect considered this interaction with internal and external to be crucial. This approach was however contradicted by Carol from Tree Tops who implements a system where the classroom and the outdoor space form two distinct environments. The primary reason for this approach is that the Tree Tops School has a large number of children for the available space, which gives the school a sense of being both noisy and busy. The school is also situated on the corner of a busy intersection. Carol's approach may be more appropriate when space is limited, in inner-city school environments. Further research would be required to confirm the validity of this advice.

The internal spaces all have natural daylight and good ventilation.
Floors are treated to be easy to clean and soft areas have been included.

5.2.3 Community

Community concludes the design of a child centred environment as part of an ecosystem for childhood development based on the principles of an integrated approach. The purpose of this approach is to achieve ownership and identity within the community.

Site one: Qalakahle ECD Centre, Mansel Road, (2015)

The idea of community in this project rests upon the eventual acceptance of the design by the local people. Limited interaction with the community members was, however, included during the developmental phase. The functioning of the ECD centre was not completely understood by the client or the architect; which appears to be due to an authoritative role played by the NGO. This comment is based on tension perceived between Jabo and the NGO Manager. The idea of authority is further confirmed by some of the design decisions - not providing a separate office area, focus on surveillance in design, and lack of consideration of staff needs.

The installation of an electrical fence and alarm system by the NGO weakens the attempt at community buy-in as it suggests that the local surveillance is insufficient, and that trust is lacking. These security measures may be necessary however, given the location of the ECD Centre in an inner-city environment.

This control effect may result from the system of implementation required by the city, as the NGO owns the ECD building, and supports the ECD Centre with the provision of food, as well as training for some of the staff.

The positioning of the "footprint" on the site, and in relation to the market, creates openness to other spaces in the market. This open and visible outdoor play area is not ideal for the children.

Site two: LIV Village ECD Centre, Verulam, (2014)

The master plan of the Village is based on the concept of community. The architecture is founded on the principles of what is required for community - one being the spatial definition of Place, where all cultural activities take place. The courtyards are created to provide a sense of Place. The Village concept presented in this design is in line with systems thinking, as discussed in *The Pattern Language*.

The "ideal" of the Village is perfect, but it has failed somewhat in the implementation. The reason is twofold; on the one hand it is rooted in the artificial point of departure of an "ideal" of the Village, and (on the other hand) the fact that implementation has been funding-driven, and is dependent on the funding available. A Village is usually not developed in essence by two people with a good cause. There are limitations in terms of both their experience and knowledge. A natural Village would grow incrementally and have some inhabitants to start with; this was not the case in this design.

The architect stated that they designed the building without children to design for, and teachers to know what is needed. The concept of community would be much stronger if these principles could be applied in a more real situation, or if the experience and knowledge could be included through another resource.

Site three: Manor Gardens Primary School, Manor Gardens, (2013)

The notion of community is evident in the appointment of an architect who is well known to the school, both as parent and as governing body member. The community is furthered through the consultative approach to the design process.

The school seems to have a well-established system of engagement, with parents being involved in the development of the school environment and other activities or initiatives. From informal conversations with past parents, the sense of community and ownership has been part of the school over many years. This could be ascribed to the school being small in relation to other schools in the vicinity.

It is not clear what relationships exist with the neighbouring residential areas and the University. It seems that the school forms a "community within a community" rather than being integrated into the area. It was noted that the architects ensured the appointment of a local company to manufacture the steelwork required for gates etc.

Site four: Ingane Yami Children's Village ECD, Shongweni Valley, (2016)

The concept of the Village is based on community - although it functioned as an artificial family at inception, as in the case of LIV village. Although based on the same model as the LIV Village, the IY Village has been implemented at a slower pace and the growth has been more incremental. Feedback from the Village Manager is positive; that the children are settling in well. This Village only operates on long-term placement of children, and it is seen as a long-term home for all of the children once they have been placed in foster care at IY.

The implementation of the Village has been "fathered" by the community of Kloof Harvest Church. The vision of the ministry is that the Village is an extension of Kloof Harvest, and interaction between church members and Village members has been encouraged. A sense of ownership of the Village is thus twofold; firstly by the community that is planting and implementing the Village; secondly by a transfer of ownership to the people who are placed in the Village. The concept of "fathering" and dependence on Kloof Harvest Church as founders of the Village is one of the drivers of Village development. The employment of staff and appointment of service are all overseen by the Church.

The design process of the initial Village included presentation to a committee from Kloof Harvest Church. The implementation process involved consultation with a representative from the church committee, and some of the initial design decisions took time to finalise due to the relative inexperience of committee members. Perceptions of quality and value in design innovation were not always understood, and a consultative process was required to achieve the best possible outcome.

Village occupants show a sense of pride in the Village environment. This is evidence that they have assumed a sense of ownership of the project.

Collective Analysis

Each of the sites is embedded within a community and yet each presents a slightly different approach:
- Site 1, Mansel Road, is an example of the ECD centre/community space within an informal trade market.
- Site 2, LIV Village ECD, provides the ECD within a whole village concept.
- Site 3, Manor Gardens, provides the Gr R within a school setting
- Site 4, Ingane Yami School, provides the ECD within a whole village concept.

The sustainability of each of these ECD Centres is determined through their connection with their communities.

Of the four sites Manor Gardens was the only one that presented a complete engagement process, enabling a responsive design. The key factors that made the engagement possible were:

- The architect was a parent and had been a member of the school governing body. In other words the architect was part of the community prior to the design project which allowed for continuity within the design project.
- The design was established through a process of engagement with the teachers.

The role of engagement as part of the design project is to cement the project within the community.

The collective case study presented a range of engagement processes:

At Qalakahle ECD Centre the interaction was limited to the presentation of the design to the community rather than applying the methods of engagement as discussed by Derek van Heerden (NGO, Municipality, Community Representatives, Health Department)

The engagement at LIV was very limited as the actual community still needed to be established. Interaction took place between the architects and the client, rather than the end user. It should be noted that the Village design is based totally on the principles of community.

At Ingane Yami a process of engagement was attempted through discussions with the teacher, a representative from the client, as well as the person responsible for the placing of the children. The factor that will strengthen the notion of community and ownership will be the incremental growth of this project. This incremental growth requires a certain level of flexibility within the design, to allow for changing community needs and decisions.

5.3   CONCLUSION AND NEED FOR FURTHER RESEARCH

The analysis of the Case Studies through the framework developed in the literature review and policy analysis, has been successful in establishing a relationship between architecture and childhood development within the context of Kwa-Zulu Natal.

The Case Studies indicates successful application of the concepts; Responsiveness, Third Teacher and Community.

It also indicated, however, a number of aspects that need to be addressed, the most significant being, to ensure a greater level of:

- Responsiveness, specifically in terms of the engagement,

- awareness of the Third Teacher, particularly in light of the minimal awareness of the value of environment as Third Teacher

- need for a more integrated approach, in order to build community and connectedness,

The four Case Studies is significant in establishing a resource for the South African Architecture community, indicating the application of universal architectural and childhood development theories towards addressing the conditions of childhood in Africa. Furthermore the research can assist in re-positioning the role of architecture in the South African context, to become significant in building a better society.

The author can identify the requirement for further research in terms of the:

- Impact of poverty

- Untrained teachers

- Shortage of stimulating equipment

- Broader range of ECD settings

The final chapter will provide a framework for the development of Design Guidelines for children's environments in South Africa.

CHAPTER 6

CONCLUSION (AND RECOMMENDATIONS)

6.1 OPPORTUNITY FOR QUALITY ENVIRONMENTS

The Key Question posed by the research was how architectural design can provide nurturing and stimulating environments that influence the care, education and development of children between the ages of 0-6 in the province of Kwa-Zulu Natal, South Africa?

The combined research of the Literature Review, Policy Analysis and Case Studies has established that the opportunity towards establishing quality environments for children depends on key strategies.

Firstly the inclusion of the architectural profession in developing a strategy for implementation of an Integrated Development Plan that recognises the environment as an integral part of ECD provision.

Secondly the consolidation of the minimum requirements provided by Departments of Health, Education and Social Development to establish a universally applicable framework for ECD environment in South Africa.

And thirdly the establishment of a statutory design guideline for the development of ECD environments to be used by all stakeholders involved in the process

A further requirement was recognised that the approach of any development should be participative and within the framework of the Integrated Development Plan as established by the Government.

The literature review as documented in Chapter 2 responded to sub-question a.) What quality of space is required for the care, education and development of children between the ages of 0-6 years?

The literature considers three main topics namely, Places to Dwell, Places for Children and Architectural Design for children. The literature considers the role of architecture in society and the concept of dwelling, as related to place making and experience in a universal view under Places to dwell. The concept of dwelling is then narrowed into the notion of childhood and childhood development under the heading of Places for Children. The final section of the literature changes focus to review Architectural Design for children. The key concepts that are developed in this chapter are Responsiveness, Third Teacher and Community. These concepts formed the basis of the case analysis that followed in Chapter 5.

Chapter 3 considers sub-question b.) How do International and National decision makers consider the relationship between architecture and childhood development?

The review of a range of relevant policies and research documents from the UN, Government, Children's Institute and UNESCO, was completed to establish the position of Architecture in the Early Childhood Sector of South Africa. The literature provided confirmation of the implementation of the key concepts of Responsiveness, Third

Teacher and Community. The research also provided insight into the lack of integration, and the minimal role architectural design has played historically in the development of places for children in the South African context. This section thus provided an initial response to sub-question c.) What changes are required in the process and development of Early Childhood Development facilities?

The collection of four case studies aimed to respond to sub-question d.) How does the environment impact positively on ECD where the architects set out to provide quality spaces for the care, education and development of children in the KwaZulu-Natal province?

The case studies were used to investigate the level of success obtained where architecture was designed to impact positively on the development of children. Each case study represented a different Urban / Village setting for the architectural design and included either ECD or Gr R (or both). The case study section included interviews with key informants to confirm and enrich the research outcomes.

The analysis of the case studies as documented in Chapter 5 used the key concepts of Responsiveness, Third Teacher and Community. The analysis was successful in confirming the relationship between architecture and childhood development through the application of these concepts as a framework for design.

The research has confirmed the original intention of establishing design guidelines as a mechanism to impact positively on the environments for Early Childhood Development. The intention of the guidelines should be aimed at all the stakeholders involved in the process of establishing spaces for children; Managers, Teachers, NGO's, parents, Departments of Health, Education, Social Development representatives and architects. The primary aim of the document will be to provide a benchmark and methodology for establishing and promoting quality environments for children.

It is imperative to formalise the implementation of such guidelines and to resolve the issues of inconsistency between departmental requirements. One set of requirements needs to be established to include the requirements of all three of the departments involved in ECD. The requirement should be published in a single document. The Integrated Development Plan for ECD should be extended to specify the implementation of the above mechanisms to ensure the development of quality ECD environments.

The research highlighted the link between the pedagogical system and the design of the environment. The aim of the Department of Education to formalise a curriculum for the year before Gr R as part of the compulsory primary education system will be to the benefit of this requirement. However there is still a need to provide a framework for the

educational practices in NGO's and private ECD facilities, that could implement the principles outlined as the concept of community as presented in the research.

Within the Case studies the two sites dealing with an ECD as part of a Children's village have shown possibility of incorporating ECD with in a defined community. The village setting is designed to be walkable providing, work, education and other services required for daily life with-in close proximity and with a relatively high density. This concept has the potential to be replicated with in a rural village context, or in pockets within an urban setting in South Africa.

6.2 DEVELOPING A FRAMEWORK FOR THE DESIGN GUIDELINES FOR ECD ENVIRONMENTS

Within the aim of this research the guidelines will initiate the transformation of the architectural design of spaces for children, to achieve a positive impact on childhood development for children in South Africa.

The objectives of the research have been successfully achieved with the confirmed understanding of the relationship between childhood development and architecture. The concepts, Responsiveness, Third Teacher and Community, were used to indicate that architecture plays a functional role in Early Childhood Development. The Case Study has highlighted methods of translating these theoretical concepts into an architecture that creates places for people (children) to dwell.

The final objective of the research was to develop a framework for the Architectural Design Guidelines for Children's Spaces in South Africa.

The following framework is recommended:

The Design Guidelines need to provide a process that includes the primary aspects as established in the preceding chapters. The inclusion of the key stakeholders needs to be from the outset. The first stage of the process is establishing the goals and understanding the needs through a consultative approach to develop a comprehensive vision statement. The next stage entails developing a project brief through an integrated process, where all stakeholders are included, to ensure that the full scope of requirements can be met. A further requirement is to include all legislative documents in terms of: Health, Education and Social Development with regards to facilities; building regulations inclusive of the recently included sustainable practices (Part XA); National Curriculum and other curricula or pedagogical systems.

The Design Guidelines need to provide strategies for the implementation of the architectural concepts of Responsiveness, Third Teacher and Community

Responsiveness describes how the environment should respond to both context and people. The strategies to achieve a responsive design of an ECD environment include primarily a consultative approach that incorporates workshops, seminars and other appropriate methods to insure the inclusion of the teachers, the parents, the children and any other end- users of the proposed environment. Representatives of funding organisations and departments should ideally be included.

The consideration of contextual concerns which are appropriate to the specific project, namely geographic, climatic, cultural, social and pedagogical should inform the architectural decisions.

The aims of the project need to include using architectural design to provide appropriate innovative solutions to ensure a child-orientated environment within a supportive ecosystem. Specific design principles should address sensory stimulus, scale, ability and nature.

Third Teacher defines the environment as providing silent lessons which are related to the curriculum, by being child-centred, innovative and allowing for exploration.

The architectural design need to explore opportunities of creating environments for the child to actively construct his/her own learning, as acknowledged by pedagogy which is supportive of the principles of the Third Teacher.

Architectural design which forms a child-centred background for development specifically in providing dedicated teaching spaces where children need to be more focused. In areas that allow for free play, the architecture needs to allow possibilities of exploration through innovative design. The architecture can include specific learning opportunities in terms of the structural system, choice of materials and architectural details. The specific inclusion of sustainable practices can also reinforce this strategy.

The design needs to consider the role of nature in the environment for children, to have an equal status to that of the built environment. The outdoor environment needs to form part of the design and implementation processes. A variety of natural elements, as well as vegetable gardens and fruit trees, is required.

The architectural design should include the internal and outdoor equipment to allow for a total environment to be achieved. The equipment is an extension of the architecture and should adhere to the same principles.

Community concludes the design of a child-centred environment as part of an ecosystem for childhood development, based on the principles of an integrated

approach. The purpose of this approach is to achieve ownership and identity within the community.

The design needs to create an environment that supports an integrated development approach to ECD; where Health, Education and Social Development interventions are provided in shared facilities that form part of a broader ecosystem of family and community.

A consultative process needs to be followed by implementing the principles described under Responsiveness. The ownership and identity of a design are achieved through this process.

The architectural design strategies of 'multifunctional', 'flexibility' and 'incremental growth' need to be applied to support the implementation of an integrated development for ECD. The principles of connection and community learning need to be applied in the design of environments for children.

The research problem was defined as: The concept of the built environment and how it impacts on childhood development is seldom considered in the provision of Early Childhood Development in South Africa.

The research has established a framework for the architectural design of children's environments in South Africa as a mechanism that can change the concept of the built environment, and thereby impact on childhood development in South Africa.

The implementation of this framework will require a consultative process which will enable the development of the Design Guideline Document. The point of departure for the development of the Design Guidelines will need to acknowledge the Role of Architecture in society and the importance of Early Childhood Development and how Architecture and Childhood Development are integrated and related.

APPENDICES

I   CONVENTION OF THE RIGHTS OF THE CHILD

FACT SHEET: A summary of the rights under the Convention on the Rights of the Child

Article 1 (Definition of the child): The Convention defines a 'child' as a person below the age of 18, unless the laws of a particular country set the legal age for adulthood younger. The Committee on the Rights of the Child, the monitoring body for the Convention, has encouraged States to review the age of majority if it is set below 18 and to increase the level of protection for all children under 18.

Article 2 (Non-discrimination): The Convention applies to all children, whatever their race, religion or abilities; whatever they think or say, whatever type of family they come from. It doesn't matter where children live, what language they speak, what their parents do, whether they are boys or girls, what their culture is, whether they have a disability or whether they are rich or poor. No child should be treated unfairly on any basis.

Article 3 (Best interests of the child): The best interests of children must be the primary concern in making decisions that may affect them. All adults should do what is best for children. When adults make decisions, they should think about how their decisions will affect children. This particularly applies to budget, policy and law makers.

Article 4 (Protection of rights): Governments have a responsibility to take all available measures to make sure children's rights are respected, protected and fulfilled. When countries ratify the Convention, they agree to review their laws relating to children. This involves assessing their social services, legal, health and educational systems, as well as levels of funding for these services. Governments are then obliged to take all necessary steps to ensure that the minimum standards set by the Convention in these areas are being met. They must help families protect children's rights and create an environment where they can grow and reach their potential. In some instances, this may involve changing existing laws or creating new ones. Such legislative changes are not imposed, but come about through the same process by which any law is created or reformed within a country. Article 41 of the Convention points out the when a country already has higher legal standards than those seen in the Convention, the higher standards always prevail.

Article 5 (Parental guidance): Governments should respect the rights and responsibilities of families to direct and guide their children so that, as they grow, they learn to use their rights properly. Helping children to understand their rights does not mean pushing them to make choices with consequences that they are too young to handle. Article 5 encourages parents to deal with rights issues "in a manner consistent with the evolving capacities of the child". The Convention does not take responsibility for children away from their parents and give more authority to governments. It does place on governments the responsibility to protect and assist families in fulfilling their essential role as nurturers of children.

Article 6 (Survival and development): Children have the right to live. Governments should ensure that children survive and develop healthily.

Article 7 (Registration, name, nationality, care): All children have the right to a legally registered name, officially recognised by the government. Children have the right to a nationality (to belong to a country). Children also have the right to know and, as far as possible, to be cared for by their parents.

Article 8 (Preservation of identity): Children have the right to an identity – an official record of who they are. Governments should respect children's right to a name, a nationality and family ties.

Article 9 (Separation from parents): Children have the right to live with their parent(s), unless it is bad for them. Children whose parents do not live together have the right to stay in contact with both parents, unless this might hurt the child.

Article 10 (Family reunification): Families whose members live in different countries should be allowed to move between those countries so that parents and children can stay in contact, or get back together as a family.

Article 11 (Kidnapping): Governments should take steps to stop children being taken out of their own country illegally. This article is particularly concerned with parental abductions. The Convention's Optional Protocol on the sale of children, child prostitution and child pornography has a provision that concerns abduction for financial gain.

Article 12 (Respect for the views of the child): When adults are making decisions that affect children, children have the right to say what they think should happen and have their opinions taken into account. This does not mean that children can now tell their parents what to do. This Convention encourages adults to listen to the opinions of children and involve them in decision-making -- not give children authority over adults. Article 12 does not interfere with parents' right and responsibility to express their views on matters affecting their children. Moreover, the Convention recognizes that the level of a child's participation in decisions must be appropriate to the child's level of maturity. Children's ability to form and express their opinions develops with age and most adults will naturally give the views of teenagers greater weight than those of a preschooler, whether in family, legal or administrative decisions.

Article 13 (Freedom of expression): Children have the right to get and share information, as long as the information is not damaging to them or others. In exercising the right to freedom of expression, children have the responsibility to also respect the rights, freedoms and reputations of others. The freedom of expression includes the right to share information in any way they choose, including by talking, drawing or writing.

Article 14 (Freedom of thought, conscience and religion): Children have the right to think and believe what they want and to practise their religion, as long as they are not stopping other people from enjoying their rights. Parents should help guide their children in these matters. The Convention respects the rights and duties of parents in providing religious and moral guidance to their children. Religious groups around the world have expressed support for the Convention, which indicates that it in no way prevents parents from bringing their children up within a religious tradition. At the same time, the Convention recognizes that as children mature and are able to form their own views, some may question certain religious practices or cultural traditions. The Convention supports children's right to examine their beliefs, but it also states that their right to express their beliefs implies respect for the rights and freedoms of others.

Article 15 (Freedom of association): Children have the right to meet together and to join groups and organisations, as long as it does not stop other people from enjoying their rights. In exercising their rights, children have the responsibility to respect the rights, freedoms and reputations of others.

Article 16 (Right to privacy): Children have a right to privacy. The law should protect them from attacks against their way of life, their good name, their families and their homes.

Article 17 (Access to information; mass media): Children have the right to get information that is important to their health and well-being. Governments should encourage mass media – radio, television, newspapers and Internet content sources – to provide information that children can understand and to not promote materials that could harm children. Mass media should particularly be encouraged to supply information in languages that minority and indigenous children can understand. Children should also have access to children's books.

Article 18 (Parental responsibilities; state assistance): Both parents share responsibility for bringing up their children, and should always consider what is best for each child. Governments must respect the responsibility of parents for providing appropriate guidance to their children – the Convention does not take responsibility for children away from their parents and give more authority to governments. It places a

responsibility on governments to provide support services to parents, especially if both parents work outside the home.

Article 19 (Protection from all forms of violence): Children have the right to be protected from being hurt and mistreated, physically or mentally. Governments should ensure that children are properly cared for and protect them from violence, abuse and neglect by their parents, or anyone else who looks after them. In terms of discipline, the Convention does not specify what forms of punishment parents should use. However any form of discipline involving violence is unacceptable. There are ways to discipline children that are effective in helping children learn about family and social expectations for their behaviour – ones that are non-violent, are appropriate to the child's level of development and take the best interests of the child into consideration. In most countries, laws already define what sorts of punishments are considered excessive or abusive. It is up to each government to review these laws in light of the Convention.

Article 20 (Children deprived of family environment): Children who cannot be looked after by their own family have a right to special care and must be looked after properly, by people who respect their ethnic group, religion, culture and language.

Article 21 (Adoption): Children have the right to care and protection if they are adopted or in foster care. The first concern must be what is best for them. The same rules should apply whether they are adopted in the country where they were born, or if they are taken to live in another country.

Article 22 (Refugee children): Children have the right to special protection and help if they are refugees (if they have been forced to leave their home and live in another country), as well as all the rights in this Convention.

Article 23 (Children with disabilities): Children who have any kind of disability have the right to special care and support, as well as all the rights in the Convention, so that they can live full and independent lives.

Article 24 (Health and health services): Children have the right to good quality health care – the best health care possible – to safe drinking water, nutritious food, a clean and safe environment, and information to help them stay healthy. Rich countries should help poorer countries achieve this.

Article 25 (Review of treatment in care): Children who are looked after by their local authorities, rather than their parents, have the right to have these living arrangements looked at regularly to see if they are the most appropriate. Their care and treatment should always be based on "the best interests of the child". (see Guiding Principles, Article 3)

Article 26 (Social security): Children – either through their guardians or directly – have the right to help from the government if they are poor or in need.

Article 27 (Adequate standard of living): Children have the right to a standard of living that is good enough to meet their physical and mental needs. Governments should help families and guardians who cannot afford to provide this, particularly with regard to food, clothing and housing.

Article 28: (Right to education): All children have the right to a primary education, which should be free. Wealthy countries should help poorer countries achieve this right. Discipline in schools should respect children's dignity. For children to benefit from education, schools must be run in an orderly way – without the use of violence. Any form of school discipline should take into account the child's human dignity. Therefore, governments must ensure that school administrators review their discipline policies and eliminate any discipline practices involving physical or mental violence, abuse or neglect. The Convention places a high value on education. Young people should be encouraged to reach the highest level of education of which they are capable.

Article 29 (Goals of education): Children's education should develop each child's personality, talents and abilities to the fullest. It should encourage children to respect others, human rights and their own and other cultures. It should also help them learn to live peacefully, protect the environment and respect other people. Children have a particular responsibility to respect the rights their parents, and education should aim to develop respect for the values and culture of their parents. The Convention does not address such issues as school uniforms, dress codes, the singing of the national anthem or prayer in schools. It is up to governments and school officials in each country to determine whether, in the context of their society and existing laws, such matters infringe upon other rights protected by the Convention.

Article 30 (Children of minorities/indigenous groups): Minority or indigenous children have the right to learn about and practice their own culture, language and religion. The right to practice one's own culture, language and religion applies to everyone; the Convention here highlights this right in instances where the practices are not shared by the majority of people in the country.

Article 31 (Leisure, play and culture): Children have the right to relax and play, and to join in a wide range of cultural, artistic and other recreational activities.

Article 32 (Child labour): The government should protect children from work that is dangerous or might harm their health or their education. While the Convention protects children from harmful and exploitative work, there is nothing in it that prohibits parents from expecting their children to help out at home in ways that are safe and appropriate to their age. If children help out in a family farm or business, the tasks they do be safe and suited to their level of development and comply with national labour laws. Children's work should not jeopardize any of their other rights, including the right to education, or the right to relaxation and play.

Article 33 (Drug abuse): Governments should use all means possible to protect children from the use of harmful drugs and from being used in the drug trade.

Article 34 (Sexual exploitation): Governments should protect children from all forms of sexual exploitation and abuse. This provision in the Convention is augmented by the Optional Protocol on the sale of children, child prostitution and child pornography.

Article 35 (Abduction, sale and trafficking): The government should take all measures possible to make sure that children are not abducted, sold or trafficked. This provision in the Convention is augmented by the Optional Protocol on the sale of children, child prostitution and child pornography.

Article 36 (Other forms of exploitation): Children should be protected from any activity that takes advantage of them or could harm their welfare and development.

Article 37 (Detention and punishment): No one is allowed to punish children in a cruel or harmful way. Children who break the law should not be treated cruelly. They should not be put in prison with adults, should be able to keep in contact with their families, and should not be sentenced to death or life imprisonment without possibility of release.

Article 38 (War and armed conflicts): Governments must do everything they can to protect and care for children affected by war. Children under 15 should not be forced or recruited to take part in a war or join the armed forces. The Convention's Optional Protocol on the involvement of children in armed conflict further develops this right, raising the age for direct participation in armed conflict to 18 and establishing a ban on compulsory recruitment for children under 18.

Article 39 (Rehabilitation of child victims): Children who have been neglected, abused or exploited should receive special help to physically and psychologically recover and reintegrate into society. Particular attention should be paid to restoring the health, self-respect and dignity of the child.

Article 40 (Juvenile justice): Children who are accused of breaking the law have the right to legal help and fair treatment in a justice system that respects their rights. Governments are required to set a minimum age below which children cannot be held criminally responsible and to provide minimum guarantees for the fairness and quick resolution of judicial or alternative proceedings.

Article 41 (Respect for superior national standards): If the laws of a country provide better protection of children's rights than the articles in this Convention, those laws should apply.

Article 42 (Knowledge of rights): Governments should make the Convention known to adults and children. Adults should help children learn about their rights, too. (See also article 4.)

Articles 43-54 (implementation measures): These articles discuss how governments and international organizations like UNICEF should work to ensure children are protected in their rights.

II ARCHITECTURE & CHILDREN: UIA BUILT ENVIRONMENT EDUCATION NETWORK

UN Convention on the Rights of the Child

The **UIA Built Environment Education Network** supports the principles of the *United Nations Convention on the Rights of the Child*, which holds that a child should be fully prepared to live an individual life in society and brought up in the spirit of the ideals proclaimed in the Charter of the United Nations and in particular in the spirit of peace, dignity, tolerance, freedom, equality and solidarity . . . Taking due account of the importance of the traditions and cultural values of each people for the protection and harmonious development of the child.

The *UN Convention on the Rights of the Child* (http://www.unhchr.ch/html/menu3/b/k2crc.htm), which was adopted by General Assembly resolution 44/25 of 20 November 1989, entered into force on 2 September 1990. It has been ratified by 192 countries.

The *Convention* defines a child as "every human being below the age of eighteen years unless under the law applicable to the child, majority is attained earlier".

Articles 2.1, 17 and 29 of the *Convention* have particular relevance to the aims of the **UIA Built Environment Education Network**, in that they require States to respect and ensure for every child:

- The rights set out in the *Convention* without discrimination of any kind, irrespective of the child's or his or her parent's or legal guardian's race, colour, sex, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status (Article 2.1).

- That the child has access to information and material from a diversity of national and international sources, especially those aimed at the promotion of his or her social, spiritual and moral well-being and physical and mental health. (Article 17) To this end, States Parties shall:

  (a) Encourage the mass media to disseminate information and material of social and cultural benefit to the child and in accordance with the spirit of article 29;

  (b) Encourage international co-operation in the production, exchange and dissemination of such information and material from a diversity of cultural, national and international sources;

  (c) Encourage the production and dissemination of children's books;

  (d) Encourage the mass media to have particular regard to the linguistic needs of the child who belongs to a minority group or who is indigenous;

  (e) Encourage the development of appropriate guidelines for the protection of the child from information and material injurious to his or her well-being, bearing in mind the provisions of articles 13 and 18.

- That the education of the child shall be directed (Article 29) to:

  (a) The development of the child's personality, talents and mental and physical abilities to their fullest potential;

ARCHITECTURE & CHILDREN
UIA Built Environment Education Network

Our Children will Build the Future

uia

The UIA Built Environment network aims to help Architects and Teachers everywhere show young people what makes good Architecture and a Sustainable environment. So that, as adult citizens, users, clients and decision-makers they may take an active part in shaping the world they live in, embracing both heritage and innovation in the creation of communities which provide a healthy and harmonious quality of life for all.

(b) The development of respect for human rights and fundamental freedoms, and for the principles enshrined in the Charter of the United Nations;

(c) The development of respect for the child's parents, his or her own cultural identity, language and values, for the national values of the country in which the child is living, the country from which he or she may originate, and for civilizations different from his or her own;

(d) The preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance, equality of sexes, and friendship among all peoples, ethnic, national and religious groups and persons of indigenous origin;

(e) The development of respect for the natural environment.

III   SOUTH AFRICAN STANDARDS FOR ECD PROVISION

Extract from SA min standards:

PREMISES AND EQUIPMENT
• The buildings must be clean and safe for young children. Children must be protected from physical, social and emotional harm or threat of harm from themselves or others. All reasonable precautions must be taken to protect children and practitioners from the risk of fire, accidents and or other hazards.
• The inside and outside play areas must be clean and safe for young children. Each child must have enough space to move about freely, which means there should be 1,5 m2 of indoor play space per child and 2 m2 of outdoor play space per child.
• The premises should be disability friendly.
• Equipment must be clean and safe for young children. There should be enough equipment and resources that are developmentally appropriate for the number of children in the centre.

WORKING WITH FAMILIES
• Primary caregivers such as parents (and other caregivers that fall within this definition) are the most critical providers of stimulation, care and support for their young children and should be enabled to provide their children with the best possible care and support as a first point of departure.
• Parents are the primary caregivers of their children and must be involved as much as possible in the functioning of the centre.
• Early childhood development services are part of the community and must make sure that there is a good relationship between them and families.
• Families and children must be free to express dissatisfaction with the service provided and their concerns and complaints must be addressed seriously.

Minimum Standards:
• The buildings must be clean and safe for young children. Children must be protected from physical, social and emotional harm or threat of harm from themselves or others. All reasonable precautions should be taken to protect children and practitioners from the risk of fire, accidents and or other hazards.
• The inside and outside play areas must be clean and safe for young children. Each child must have enough space to move about freely, meaning there must be 1,5 m2 of indoor play space per child and 2 m2 of outdoor play space per child.
• Equipment must be clean and safe for young children. There must be enough equipment and resources that are developmentally appropriate for the number of children in the centre. The premises and quipment must be safe for young children, clean and well maintained. Children must have enough space to move around freely and explore the environment in safety. The premises should be bright and welcoming to children. Premises should be accessible to children with disabilities.

6.1.1   The structure must be safe, weatherproof and well ventilated. The floor should be covered with material that is suitable for children to play and sit on. Walls and floors should be easy to clean. There must be windows that give adequate light and, if possible, allow the children to see the outside world.
6.1.2   If the same room space is used as a playroom, office and kitchen, each area must be clearly marked. The separate areas will consist of an area for play activities, an area for taking care of sick children, and an area for food preparation. Fresh drinking water must be available for the children.
The play area for the children should be at least 1,5 m2 per child. As children progress from crawling to walking, they need space to practise these skills. Children need to be able to move around freely. Children with disabilities must have access to as many of the activities as possible.
6.1.3   Where more than 50 children are enrolled for a full day, a separate office must be provided. The office should be large enough to accommodate a sickbay for at least two children.
6.1.4   Where more than 50 children are enrolled for a full day, provision must be made for a separate area where staff are able to rest and lock up their personal possessions.
6.1.5 Where food is prepared on the premises, there must be an area for preparation, cooking and washing up.
6.1.9 At least 2 m^2 safe outside playing space per child must be provided. The outdoor area must be fenced with a gate that children cannot open. Children should not be able to leave the premises alone. Children need space to move and exercise to develop their gross motor skills. They need space to run freely and play with outdoor equipment. The outside area can consist of lawn, sand pits, shady areas and

hard surfaces. Outside play equipment must be provided. This must be safe and not have sharp edges or pieces. No poisonous or harmful plants may be grown on the premises.

The ratio of ECD practitioners to children enrolled should be as follows:
• Children from birth to eighteen months: one ECD practitioner for every six children or less. Where possible an assistant should be employed;
• Children aged older than 18 months and up to three years: One ECD practitioner for every twelve children or less. Where possible an assistant should be employed;
• Children aged three to four years: One ECD practitioner to every twenty children or less. Where possible an assistant should be employed;
• Children aged five to six years: One ECD practitioner for every thirty children or less. Where possible an assistant should be employed;
• School going children who attend after school care: One ECD practitioner for every thirty-five children or less. Where possible an assistant should be employed.

IV   DURBAN CITY HEALTH DEPARTMENT. MINIMUM REQUIREMENT
(As provided by Michelle Quarmby Architect for Site 1

CITY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH SERVICES
DAY CARE FACILITIES

The requirements of this department imposed on day care facilities / creches will vary from premises to premises depending on such factors as layout of premises, the design, size and type of buildings erected thereon, the terrain and extent of the property, the age group of the children catered for and the operating times of the creche. However, certain basic requirements of this department will have to be satisfied and are enunciated below.

1.   **Office / Isolation Room:**

        -    suitable and adequate in size
        -    wash-hand basin with hot and cold water to be installed
        -    a small bed for a sick child and first aid kit to be provided.

2.   **Staff-room:**

        If more than 10 staff members are employed on the premises a staff-room must be provided.

3.   **Indoor Play Area:**

        A minimum of 1.5 m² of free floor space must be provided for each child accommodated on the premises. $11 o \, \rho \, ^2$

4.   **Outdoor Play Area:**

        Suitably fenced outdoor play areas of 2 m² per child must be provided separately for the different age groups 0 - 2 years, 2 - 3 years and 4 - 5 years. The outdoor play area must:
        -    be level and free from excavations and dangerous terrains
        -    have lawns and adequate shade
        -    preferably have a hard surface for toys with wheels
        -    have suitable and adequate play equipment; and
        -    have a suitable sandpit with a cover.

        In situations where there is absolutely no possibility of providing an outdoor play area (eg in a multi-storeyed building in the CBD) an area of 3,5 m² per child must be provided indoors. It must however be stressed that this situation will only be considered as an exception, not a generalised rule and every effort must be made by the applicant to secure a premises with an outdoor area.

5. **Kitchen:**

- if children are catered for on a full-day basis, then a suitable kitchen, adequate in size to cater for the number of children accommodated on the premises, must be provided
- a stainless steel double-bowl sink and a wash-hand basin drained to the gully, must be provided in the kitchen
- suitable storage and refrigeration facilities must also be provided
- all working surfaces must be stainless steel or of other impermeable material; and
- if babies are to be accommodated, separate refrigeration facilities for baby feeds are to be provided.

6. **Toilets:**

- 1 water closet and 1 wash-hand basin must be provided for every 20 children catered for on the premises
- legislation does not call for separate toilets for boys and girls for the age group 2-5 years. However, it must be pointed out that girls at the age of 5 years normally refuse to use the toilets if boys are inside.
- if an "after school care" service is provided for children 6 years and older, then separate toilets must be provided for boys and girls, exclusively for this age group.

7. **Babies Room:**

- this room is intended for the accommodation of babies (0 - 2 years)
- the cots must be spaced apart to prevent physical contact between babies in cots
- a wash-hand basin fitted with hot and cold water must be installed in each baby room
- the number of babies to be accommodated in a baby room will depend upon the size of the cots, space between the cots and the access space around the cots for care givers
- a suitable nappy changing area, a baby bath and a sluice must be provided. A wash-hand basin must also be provided in a sluice room.

8. **Fencing:**

- suitable fencing to a height of 1.8 m must be erected along the boundaries of the premise, around the outdoor play area and at such other places so as to preclude child access to roads, car parks and other unsafe areas
- all gates erected on the premises must be fitted with self closers and latches of the self actuating type.

9.   Store-rooms:

Suitable and adequate storage facilities must be provided for mattresses, play equipment etc.

10.   This department is opposed to the erection of swimming / baptism pools on the creche premises.

It is recommended that in the planning stages of a creche the architect consults Mr I.G. Foster the Environmental Health Officer of this department, telephone 3003144, 3113644 to ensure full compliance with all requirements and to avoid unnecessary delay.

Prior to compliance with the abovementioned requirements it is further advised that the applicant contact (1) KZNPA (Department of Social Welfare), telephone: 3605111, and (2) Development and Planning Unit (Town Planning), telephone: 3002911, 3117049

Sonia Solomon: 3605738
(KZNPA)

B.B. Bhengu : 3605448

V   NATIONAL EARLY LEARNING AND DEVELOPMENT STANDARDS FOR CHILDREN BIRTH TO FOUR YEARS (NELDS)

Extracts from The NELDS Documents related to the research discussion in Chapter 3.3.1.

Childcare services in South Africa

This document can be used by childcare and education providers in a range of settings. In South Africa, the childcare and education services must provide for all children including those who are orphaned and vulnerable. The following are the categories of services provided:

- Home care within a family setting
- Custodial care
- Private institutions
- Independent institutions
- Aftercare services
- School-based services

Guiding principles

The South African Constitution (Act 108 of 1996) emphasises democratic values, social justice, improved quality of life for all, equality and protection of all citizens. The guiding principles of this document are based on the Constitution and are therefore that:

- Adults have the responsibility for ensuring that the rights of children are protected and their growth and development are promoted.
- Children need to develop a positive self-identity early in life. They need to understand their identity as South African citizens and aspire to contribute positively to, and benefit from, their community, their country and the rest of the world.
- Children need to develop skills, knowledge, values and attitudes for living and coping with life and its challenges, as well as life-long learning experiences.
- An appreciation and understanding of inclusivity, equity and diversity needs to be fostered in early childhood through anti-bias curriculum practices.
- An integrated child-centred approach is critical to ensure holistic growth and development of young children. This allows for a child's freedom of expression and ability to explore their environment and experience healthy well-being.

Purpose of NELDS

The document is designed to provide children with the best start in life by equipping their caregivers, teachers, practitioners and parents with information and knowledge on how to ensure that their children's early experiences at home and in institutionalised forms of care and education are developmentally appropriate.

The document will also specifically assist in the development of programmes and activities to enable children to acquire knowledge, skills and attitudes that are relevant for further and continuous development. It will empower parents and caregivers on how to enrich children's environments by understanding their growth and development processes, their competencies and capabilities and what they require.

This period in a child's life is generally ==characterised and described by the strands or domains relating to physical, emotional, cognitive, language and social development.== What children do and are expected to do at different stages of growth within the above domains/strands can be used to characterise, understand and assess their growth and development.

Most children move through similar stages of development, but not all children do this at the same pace.

Each child is unique and different not only in their appearance, but also in how they develop and grow.

- Most ==children learn by actively engaging with the world around them.== Each child learns in their own way, and ==how they grow and develop depends on their environment== and the kind of interactions they have with their parents, caregivers, peers and siblings.
- Most ==children are curious,== and adults must take their explorations and questions seriously so that ==learning becomes an enjoyable experience.==
- Children benefit from a close and loving involvement with an adult. A stable relationship provides the basis from which children can move with confidence from the family to being part of the wider community.
- Children grow up in a diverse society and adults need to help them learn to respect others and to avoid bias based on race, gender, ability, language or beliefs.

In this document, children are categorised into the following age groups on the understanding that there will be overlap between these. The differences in individual children's developmental progress and pace are accommodated by using a broad range in the age categories. Smaller age ranges and the related developmental indicators and competencies could be dealt with in programmes that are designed using this document as a starting point.

The age categories are:

- ==Babies: 0 – 18 months==

- ==Toddlers: 18 – 36 years==

- ==Young children: 3 – 4 years==

EARLY LEARNING STANDARDS

DESIRED RESULT 1	CHILDREN ARE LEARNING HOW TO THINK CRITICALLY, SOLVE PROBLEMS AND FORM CONCEPTS
DEVELOPMENT AREA: COGNITIVE	
Introduction	The ability to think critically, solve problems and form concepts cuts across all aspects of a child's growth and development and helps a child to manage and to learn from experiences and different situations.
Standard 1	Children use all their senses to make links between themselves and the objects around them and learn that choices have consequences (cause and effect)

Age categories	Some competencies	Age validation codes	Some examples of how adults can support the growth and development of babies and young children
Babies: 0 – 18 months	• Use their bodies to explore their environment	A	• Provide safe opportunities for touching, tasting, watching, sliding on stomach, crawling or toddling
	• Watches people, objects and events	A	• Give babies things that rattle so they learn, e.g. shaking a rattle produces a sound
	• Reaches for an object when it is offered	A	• Respond to a baby smiling or crying to confirm that actions bring results
	• Drops objects and watches them fall	A	• Use words to describe the child's actions
	• Copies holding two objects to bring them together to make a sound	B	• Play games in which the child copies what you do and encourage them by copying something they do
	• Uses a radial grasp	B	
	• Holds two blocks in one hand	C	
Toddlers: 18 – 36 months	• Asks the names of things and people they see	A	• Respond to your child and answer their questions
	• Begins to use most objects for their intended purpose	A	• Praise children when they attempt to help themselves
	• Begins to identify relationships, e.g. water and sand make mud	A	• Involve children in the kitchen when it is safe to do so, e.g. mixing juice, mixing dry and wet ingredients when preparing porridge or cakes
	• Links sounds to objects or makes realistic guesses	A	
			• Identify and talk about sounds and objects in the house or when walking outside
Young children: 3 – 4 years	• Asks "why" questions about the effect of certain actions	A	• Encourage children to speculate by asking "What if….?", "What will happen next?" questions
	• Begins to predict the effect of certain actions	A	
	• Starts to use the future tense	B/C	

DESIRED RESULT 1	CHILDREN ARE LEARNING HOW TO THINK CRITICALLY, SOLVE PROBLEMS AND FORM CONCEPTS		
Standard 2	Children often imitate reality as they engage in imaginative play		
Age categories	Some competencies	Age validation codes	Some examples of how adults can support the growth and development of babies and young children
Babies: 0 – 18 months	• Recognises familiar people and objects	A	• Talk to your baby about people and objects around him or her
	• Relates familiar objects to their needs	A	• Talk to your child about what you are doing together, e.g. eating, drinking, washing
	• Imitates animal sounds	A	• Name animals and repeat the sounds they make in a playful way
	• Relates to dolls and toys as if they were real	C	
Toddlers: 18 – 36 months	• Imitates simple, everyday activities	A	• Include children in looking at a book, sweeping, etc.
	• Begins to follow instructions	B	• Play games where the child follows instructions, e.g. clap hands, stamp your feet
	• Plays with small dolls or toys, talking about what they are doing	B	
	• Imitates others in imaginative play, e.g. mother, father	B	• Join in make-believe play if invited
			• Listen when children tell you about their imaginary games
			• Provide materials to encourage imaginative play
Young children: 3 – 4 years	• Wants to help adults in domestic activities and repeat these on their own	A	• Give children smaller versions of brooms, cloths and bowls to use with you and later when playing
	• Uses one or two items of clothing to extend their imaginative play	A	• Allow children to play with items of clothing like hats, scarves, shoes, etc.
	• Describes at least two characters from familiar stories or television programmes	A	• Read and discuss stories with children, invite them to provide alternative endings
	• Uses fantasy figures in imaginative games	A	
	• Acts out parts of stories after hearing them	B	

DESIRED RESULT 2	CHILDREN ARE BECOMING MORE AWARE OF THEMSELVES AS INDIVIDUALS, DEVELOPING A POSITIVE SELF-IMAGE AND LEARNING HOW TO MANAGE THEIR OWN BEHAVIOUR

DEVELOPMENTAL AREAS: SOCIAL, PHYSICAL AND EMOTIONAL

Introduction	Children need unconditional love and acceptance and to have this expressed often. Children need to understand who they are and how to develop independence. This will help them develop characteristics that will enable them to take responsibility for themselves and for the well-being of others as they grow up.

Standard 1	Children begin to recognise their own characteristics, abilities and preferences

Age categories	Some competencies	Age validation codes	Some examples of how adults can support the growth and development of babies and young children
Babies: 0 – 18 months	• Explores own body	B	• Be aware of your facial expressions and try to show positive feelings towards your child
	• Reacts when called by name	A	
	• Uses both hands but may start to prefer to use either left or right hand	C	• Use children's names when speaking to them
	• Identifies self in mirror	C	• Play games, naming parts of the body when dressing or washing your child
	• Tries to do some things for themselves	C	• Encourage and praise children when they try to do something by themselves
	• Points to things they want but which are out of reach	B	
			• Get down to the child's level so that you can keep eye contact
Toddlers: 18 – 36 months	• Identifies things that belong to them	A	• Allow child time to try out skills, e.g. eating, dressing
	• Points to and repeats names of parts of the body, e.g. hands, feet, eyes	B	• Make a space where children can keep their own clothes and other things that belong to them
	• Knows members of own family	A	• Encourage your child to take small steps towards independence
	• Recognises self in photographs when adult shows them	A	• Encourage child to show you what they can do, e.g. feed a pet, put on a jersey, wash themselves
	• Knows full name	B	
	• Knows age	B	• Allow children to make choices whenever possible
	• Knows gender	C	
	• Uses own name and "mine" when playing	B	
	• Shows preferences for what to do or wear	B	

DESIRED RESULT 2	CHILDREN ARE BECOMING MORE AWARE OF THEMSELVES AS INDIVIDUALS, DEVELOPING A POSITIVE SELF-IMAGE AND LEARNING HOW TO MANAGE THEIR OWN BEHAVIOUR		
Standard 3	Children are learning to regulate themselves and follow routines		
Age categories	Some competencies	Age validation codes	Some examples of how adults can support the growth and development of babies and young children
Babies: 0 – 18 months	• Begins to settle into a routine for eating, sleeping, etc.	B	• Accommodate your child's needs in household routines
	• Is aware of daily routines	B	• Try to make your home safe and point out any dangerous places (e.g. plugs) with a simple "no" and limit the number of these "no's"
	• Is able to follow simple instructions	B	
Toddlers: 18 – 36 months	• Develops more of an understanding of acceptable behaviour	B	• Play short waiting games with your child
	• Waits for a short time to have needs met	B	• Talk about how you would like your child to behave, especially when trying something new
	• Develops acceptable behaviour	A	• Praise children if they behave in an acceptable way
	• Begins to understand that there are consequences to not following simple rules	A	• Involve children in planning routines
			• Simplify rules and be consistent
			• Explain consequences of rules not being followed and make sure these are age appropriate
Young children: 3 – 4 years	• Develops self-discipline	A	• Encourage children to help you make rules and help them understand the reason for these
	• Able to obey rules	B	
	• Recognises some limits and dangers	A	• Always greet, thank and show respect for your child
	• Greets and thanks others usually	B	

DESIRED RESULT 6	CHILDREN BEGIN TO DEMONSTRATE PHYSICAL AND MOTOR ABILITIES AND AN UNDERSTANDING OF A HEALTHY LIFESTYLE

DEVELOPMENT AREAS: PHYSICAL AND COGNITIVE

Introduction	Babies and young children are usually physically very active. Their bodies are developing and growing rapidly. They need nutritious food. Proper health care and a safe environment are very important to ensure growth and development.
Standard 1	Children demonstrate abilities and interest in physical activities

Age categories	Some competencies	Age validation codes	Some examples of how adults can support the growth and development of babies and young children
Babies: 0 – 18 months	• Demonstrates some eye-hand co-ordination	B/C	• Encourage children to move freely in a safe space
	• Picks up small objects with thumb and index finger	B	• Provide safe objects for holding, pushing or squeezing
	• May walk alone when one hand is held	B	• Allow children to feed themselves
	• Drops or throws objects forward	A/B	• Get down to the child's level and encourage them with smiles and talk to move towards you
	• Moves from lying down to sitting up	B	• Stand the child on your lap, hold hands and bounce him or her gently up and down
	• Feeds self with some help	B	
	• Walks, stops and starts safely	B	• Sit facing your child and ask them to push a ball to you
	• Pushes and pulls large toys, boxes and light objects around the floor	B	• Hold a child's hand when walking, running, climbing and gradually withdraw this support
	• Moves from sitting to standing	B	
	• Walks up stairs with help	C	• Play stacking games using empty containers or blocks
	• Builds a three-block tower	B	
	• Eats using a spoon, holds cup in both hands	B	• Provide safe objects to pull, crawl into, and push
	• Holds pencil or crayons in hand to scribble	B	• Provide food that can be eaten using fingers
			• Give child paper and thick crayons

DESIRED RESULT 6	CHILDREN BEGIN TO DEMONSTRATE PHYSICAL AND MOTOR ABILITIES AND AN UNDERSTANDING OF A HEALTHY LIFESTYLE		
Toddlers: 18 – 36 months	• Pushes and pulls toys	A	• Play body movement games with your child
	• Throws small ball	B	• Play music and dance with your child
	• Attempts to kick large ball	B/C	• Provide large and small balls and encourage your child to throw or kick them to you
	• Moves rhythmically to music	A	
	• Builds a five or six-block tower	A	
	• Runs well	A	• Arrange outings to open spaces or parks where children can run freely and safely
	• Climbs low walls or crèche equipment	B/C	
	• Jumps with two feet together	B	• Provide equipment for balancing, climbing and running through
	• Stands and walks on tiptoe	B	• Provide small wrapped objects and demonstrate how to unwrap these
	• Threads large beads	B	• Play clapping and movement games
			• Provide take-apart toys
			• Play catch-me games
			• Play ball games
Young children: 3 – 4 years	• Jumps both backwards and forwards	A	• Encourage children to follow simple steps in dances
	• Uses scissors to cut along a line	B	• Make simple obstacle courses with boxes, cushions, etc.
			• Ask children to help with simple tasks lifting or pushing objects
			• Provide round-ended scissors and old magazines for cutting

VI INGANE YAMI CHILDREN'S VILLAGE SCHOOL

The Project Brief.

Defining the Objectives:

The school design aims to provide learning areas for all the children at Ingane Yame Children's Village. The school will be based on the Accelerated Christian Learning System and will provide for the care and education of children from 2 years to 18 years.

Project description:

The maximum number of children is 150. This is based on the capacity of the village once all the Homes have been completed and are occupied. The age range of children will always be between 2 to 18/19. The number of children per age group will depend on the adoption age of the children.

- The above scenario is what differentiates this school from a more traditional school model; it allows for a design that enables flexible use.

The school will be situated within the Village, with the Community Hall, Resources Centre, soccer field and the planned Crèche all forming part of the final school accommodation. This type of school is more comparable with a boarding school facility or a community/village school. It is a closed system but situated with-in another community. Considering the establishment of Harvest Church at Giba it is important to carefully consider the role of the Village within the larger community in order to understand the need that may arise for further relations with the wider community and how this will impact on the design of the school.

- The whole site forms a learning environment, rather than it being isolated to the classrooms (School as Village and Village as School)

- Defining the school as a Village School, the accommodation can be designed to allow for other uses to maximise available spaces.

The Village is situated within a natural landscape, on a steeply sloping site. This setting affords a connectedness with nature not usually found in schools. The landscape can be incorporated to form an adventurous outdoor play environment which will enhance the curriculum. The sloping site necessitates the building form to conform to the available space.

- Maximise the natural setting of the school and build on the environmental design features already incorporated in Village buildings.

- Maximise the available level site area with a responsive building form.

The school pedagogical system is based on the Accelerated Christian Education System. This system has a learner-centred approach in the learning areas, where each child is provided with an individual personalised desk cubicle (office). The implementation of the cubicle starts from Gr R through to Gr 12. Each child progresses at their own pace but will be placed within a group of same grade children. It is important to recognise that the child has ownership of the cubicle area. In a standard school system the children do not have this same ownership of space.

The ACE system includes for group activities, as well as a marking station in each classroom.

Other aspects of the traditional classroom that need to be accommodated are display areas and reading areas. Specialist teaching facilities may be required for the High School accommodation. (Science, Technology, ICT etc.) The need for remedial teaching, occupational therapy, psychology / counselling and art therapy need to be recognised and included in the development.

- The design needs to accommodate the individual within the group.

- Maximise group spaces to be shared by different age groups.

The following questions need to be considered by the client:

- How will snacks / lunch be provided? From central place in school or sent from each home?
- What specialist teaching facilities will be required? (Music, Art, Science, Technology etc.)
- What additional facilities will be provided? Occupational Therapy, Remedial Teaching, Speech and Language Therapy, Psychology / Counselling services? This could be done after hours in the school areas.
- Engagement with wider community? Possibility of adult education / training to allow upliftment needs to be considered.
- What is the possibility of later inclusion of children from the wider community into the school?

Accommodation:

The learning areas need to accommodate the developmental stages in children and allow for the grouping of grades together. The purpose of the clustering is to share facilities between the grades and allow for flexibility in numbers. A maximum number of children have been established for each cluster rather than for each grade. Flexibility when accommodating ages that fall at the edge of each grouping allows for further overlap when the number of children in a specific age group exceeds the total.

Cluster	Age Range	Number of pupils	Adult to child ratio	Floor area required
ECD + Gr R	2-6 year olds	30	1 adult per 5- 10 kids	2.5m^2 per child
Gr 1 + Gr 2 + Gr 3	6-9 year olds	30	1 adult per 10 - 15 kids	1.67-3m^2 per child. *
Gr 4 + Gr 5 + Gr 6	9-12 year olds	30	1 adult per 20 -30 kids	2m^2 per child
Gr 7 + Gr 8 + Gr 9	12- 15 year olds	30	1 adult per 30 kids	2m^2 per child
Gr 10 + Gr 11+ Gr 12	15-18/19 year olds	30	1 adult per 30 kids	2m^2 per child

*The range allows for small classes with shared group spaces to one large space that contains all activities.

The spaces for 2- 6 years old children needs to accommodate some separation between the 2-3 year olds, the 3-4 year olds and the 5-6 year olds. These age ranges are each at different developmental stages, with slightly different needs.

The above schedule considers only the core teaching space where the individual cubicles need to be contained. These areas are based on UK floor area standards and may require further refinement to accommodate the AEC system. The original design included the Community Hall accommodating sports activities. This space can become an integral part of the school to provide for assembly, performances, PE etc.

Learning Resource areas should be in the form of multi-functional spaces provided between clusters to allow flexible use.

Storage:
The storage provision needs to be easily accessible from each classroom and should be lockable. Additional storage should be provided for specialist subject and PE/sport.

Toilet requirements are as follows:
- 1 toilet per 10 children in the ECD-Gr R clusters
- 1 toilet per 20 children in the remainder of clusters

Outdoor Play Provision:

The outdoor play for the ECD and Gr R section will need to be specifically defined and include a design that enables the gross motor and other physical developmental needs required for the age range.

- Gr1 – Gr 3 will also require provision of age appropriate climbing apparatus, swings and space to exert energy.
- G4 – Gr6 will focus on a balance of physical development and social spaces
- Gr7 – Gr12, a sports field will allow for physical activity and social spaces

The outdoor area has the potential to form outdoor classrooms, specifically a small amphitheatre space could be provided to extend learning to the outdoors.

Outdoor areas for all age ranges need to include shaded areas. This is particularly important for the ECD Centre -Gr R and Gr 1-3 who spends longer periods outdoors.

Site conditions and available areas:

The overall site has a steep slope with minimal available platform areas situated between the houses and the Community Hall.

Positioning of the various groups should ideally allow for the ECD Centre -Gr R to be relatively close to the homes and to be provided with an outdoor play area. The next age group Gr 1 – 3 also require some outdoor play equipment. This could possibly be shared with the younger children. It should be considered that the play areas will also be used by the children outside of the school day and during holidays. The original design indicates a Crèche situated adjacent to the community hall, the new design need to explore this position for the ECD-Gr R cluster.

Gr 4-6 constitute an age group which falls between the young children and the teenagers. The boys of this age will be especially active and interested in sport.

Accommodation for Gr 7-9 and Gr 10 – 12 represents the teenage years. This area will require some specialist teaching facility for Science, Technology etc. The use of IT will also increase at

this level and should be considered in the design. The inclusion of a workshop facility to cater for vocational training.

Design Response:

The design for this school will achieve the best outcome through being responsive to the unique contextual and programmatic conditions. Key aspects to consider are as follows:

- Children's Village setting
- Variable numbers of children per age group.
- ACE pedagogical system
- Steeply sloping site with a number of small platforms
- Sustainable Approach (Economic; environmental; social)

A conceptual sketch layout indicates a possible response to these key aspects illustrating a spatial arrangement of the required accommodation integrated into the village site.

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