UNIVERSITY OF KWAZULU-NATAL
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LEARNING PROCESSES AND ITS INFLUENCE ON BUILT FORM:
Towards a proposed Learning Centre for youth development in Umlazi.

A Thesis presented by:

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Submitted in partial fulfilment of the requirements
for the degree of Master of Architecture

Architecture Discipline
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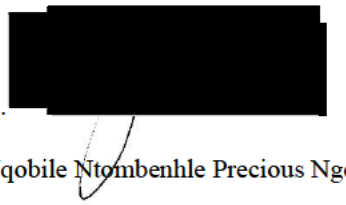
DECLARATION

I hereby declare that this document is my own unaided work. It is for submission to the School of Built Environment and Development Studies, University of KwaZulu-Natal, Durban, in partial fulfilment of the requirements for the degree of Master of Architecture. It has not been submitted before, for any degree or examination, at any other educational institution.



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I would like to express my gratitude to the Almighty for renewing my strength, reviving my faith, guiding me through the most difficult times and seeing me through this journey. Thank you for lifting me up towards accomplishing my dreams. This is my testimony that no prayer ever goes unanswered. Looking back at all that I have been through to get to this moment, I now understand that I was being moulded to become a better version of myself and that is all thanks to the Almighty. It has not been easy, but it was all worth it.

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DEDICATION

This dissertation is dedicated to my late father, my mother and my brothers for their contribution towards my success and for their involvement throughout the process towards this achievement. I am forever grateful.

ABSTRACT

Previously colonized countries have had learning processes impacted, such as Sri Lanka in South Asia, because Sri Lanka experienced low literacy levels due to insufficient education facilities. In the Sub-Saharan Africa region, Burundi experiences low literacy levels in adults and youth because they are subjected to pedagogical challenges. This is after the invasion into Africa by Europe, which led to the establishment of settler-colonies in Africa. In contexts such as these, youth have yet to overcome such barriers in education.

To understand the decolonization and deinstitutionalization of education that the research studies, there must be an understanding of colonization in education. This is a pivotal aspect of the research because it gives insight into the dynamics that have created education in South Africa to be what it is at present. The research study elaborates on this stating the history of South Africa.

Peri-urban areas are discovered through the literature to address key pedagogical barriers hindering learner achievement. Schools located in the peri-urban areas are characterized by large school learner populations and overcrowded classrooms. Poor academic performance points to fundamental problems in behaviourist pedagogy learning approach, one of which are standardized assessments, which are imposed upon learners and do not give much learner's control towards their own goals.

It is in the peri-urban areas where there is not much variety in learning approaches, as well as lack in educational resources which leads to learner's low confidence levels that stimulate young minds to learn. Youth experience learning difficulties with a variety of socio-economic challenges which present additional barriers to learning and development such as unfavourable/poor living conditions, generally illiterate and unskilled & semi-skilled societies, education levels are low-literate, small percentage of diploma level graduates, high youth unemployment and dysfunctional family structures.

The study investigates the reasons for insufficient educational resources in learning environments, especially where the schools in the area require such assistance. The study examines the influence learning processes will have on built form through understanding learning processes towards transformative learning spaces that are culturally relevant within de-colonial urban contexts. The research study explores conventional teacher-centred learning to be transformed with learner-centred learning through theoretical frameworks highlighted in the literature research.

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CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

1.1.1 Background

Learning is to acquire new knowledge and skills that influence attitudes, decisions, and behaviours (Khosrow-Pour, 1988). As recognized by Marx (1970), the research acknowledges that learning processes are concerned with the behaviour which can be identified as resulting from the previous behaviour of the individual. Individuals exist within a community and encounter experiences as a collective, influencing learned behaviours.

To give a global perspective of learning processes in relevant regions, Sri Lanka in Asia experiences low literacy levels due to insufficient education facilities. According to the social conditions of Sri Lanka report, free education facilities resulted in rapid uplifting of literacy levels to pursue higher education. (Department of Census and Statistics, 2019) In the Sub-Saharan Africa region, Burundi experiences low literacy levels in adults and youth because they are subjected to pedagogical challenges. In contexts such as these, youth have yet to overcome such barriers in education. (UNESCO, 2006)

As acknowledged by Mandela, education is an ideal mechanism towards impartial opportunities for all. (Borgen, 2003) The state of education facilities in hinterland contexts are yet to realize what Nelson Mandela had envisioned for South Africa. The power of education unlocks opportunities for all, as acknowledged by Nelson Mandela, however hinterland contexts face pedagogical barriers hindering learner achievement. The research study believes that architectural built form can influence people's attitudes, influencing their role in societies. This show the transfer of knowledge be a tool for shaping society. The typology of the research study presents what contribution can be made by learning processes and its influence on built form.

1.1.2 Motivation/Justification of the study

The perspective of Fataar (2018) contributes to the debate on what is referred to as decolonizing learning processes in South Africa. 'The state of tertiary level education has transformed into radical discursive rupture due to recognition of struggles faced by youth' (Fataar, 2018: 1). This supports the suggestion that barriers to education that are inflicted on youth by socioeconomic issues hinder performance, thus breaking away from this is essential. Hence the call for what is now referred to as 'free education' through mobilizations in tertiary institutions as a form of expression as stated by Fataar (2018).

The abovementioned proves the research acknowledges that the purpose of education should be reframed. The belief in African culture that the key to alleviating poverty is through education leaves youth in the bondage of education due to socioeconomic conditions instead of being liberated in education for the alleviation of poverty which impacts their performance. The research seeks to revitalize learning processes that are imposed on learners for a liberated and accessible learning process to gain knowledge because nothing should inhibit or limit the ability to learn. Umlazi has progressed with a diversity of residential areas and urban centres. Urban centres are activated by primary public transport corridor thus nodes have accessibility and therefore attract activity.

The availability of public learning infrastructure for the youth would enhance the efficiency of urban centres, which could stimulate existing nodes further, especially that youth are continually located around urban centres. It is unsettling that when youth progress to study at tertiary levels and higher education institutions they lack basic literacy skills, showing how insufficient learning infrastructure is and how poor leaning environments are in underprivileged areas. A learning centre adds value to alleviating the pedagogical barriers by a variety of learning approaches and educational resources to instil a culture of learning

1.2 DEFINITION OF THE PROBLEM, AIMS, AND OBJECTIVES

1.2.1 Defining the problem

The research locates itself in the peri-urban area of the eThekwini metropolitan area, Umlazi. This context is discovered through the literature to address key pedagogical barriers hindering learner achievement. Researchers of OECD (2019) revealed that schools located in the peri-urban areas are characterized by large school learner populations and overcrowded classrooms.

Poor academic performance points to fundamental problems in behaviourist pedagogy learning approach, one of which are standardized assessments, which are imposed upon learners and do not give much learner's control towards their own goals. It is in the peri-urban areas where there is not much variety in learning approaches, as well as lack in educational resources which leads to their low confidence levels that stimulate young minds to learn. (OECD, 2019)

Youth experiences learning difficulties with a variety of socio-economic backgrounds which present additional barriers to learning and development such as unfavourable/poor living conditions, generally illiterate and unskilled & semi-skilled societies, education levels are low-literate, small percentage of diploma level graduates, high youth unemployment and dysfunctional family structures. Conventional teacher-cantered learning is transforming to be replaced with learner-cantered learning. Through variety in learning approaches and access to quality educational resources, there would be better learner participation where learners take responsibility for their learning. (OECD, 2019)

1.2.2 Aim

Explore learning processes to determine how this influences built form thus creating a theoretically responsive learning environment.

1.2.3 Objectives

The aim of the research can be broken down into several individual objectives which will combine to inform how the overall aim may be achieved.

1. Explore learning processes to decolonize learning processes in urban contexts

2. Generating decolonized learning processes to influence built form through architectural theories and learning theories towards a physical and social environment that reflects a culturally connected spatial experience
3. Gain an understanding of the psychological impact of decolonized learning processes to influence built form and demonstrate African learning processes in transformative learning spaces through a proposed Learning Centre in Umlazi

1.3 SETTING OUT THE SCOPE

1.3.1 Delimitation of the research problem

The proposal will not attempt to redefine theoretical and methodological information from academics in the fields of education and learning environments. Instead, the proposal acknowledges writings from academics and references them to support the research study argument. The literature will relate to topics on learning processes in peri-urban contexts. The proposal does not seek to change current learning processes. On contrary, it seeks to understand existing learning processes from schools for observations to suggest a learning approach to the research that can encourage a shift in learning processes. The study seeks to focus on learning environments because the study proposes a public learning infrastructure. The study investigates the reasons for insufficient learning environments, especially where the schools in the area require the assistance of such learning environments.

1.3.2 Definition of Terms

Learning Space – Optimal learning that occurs in distinctive learning environments intended for learners to integrate with one another in knowledge creation (IGI Global, 1988)

Learning Processes – Learning processes are concerned with the behaviour which can be identified as resulting from the previous behaviour of the individual. Individuals exist within a community and encounter experiences as a collective, influencing learned behaviours. (Marx, 1970)

Participatory Experience – A learning strategy that encourages learners to be involved and take part in learning by experience with the conceptual or theoretical perspective to be able to retain the knowledge gained.

Pedagogy- Learning methods for gaining knowledge

Pedagogical Barriers – An obstacle that prevents the process of learning or methods of gaining knowledge, which may have to do with social, contextual, economic conditions of a particular area.

Public Learning Infrastructure - A physical structure in the form of a building concerning people with regards to the acquisition of knowledge.

Urban Area - The outskirts of the city that is developed with a density of houses, commercial buildings, roads, bridges and railways; and is within commuting distance from the city

Decolonization – The independence of a state resulting from its withdrawal from a former colony

De-colonial education – Education that is not rooted in the exclusion but is rather about being among indigenous civilizations towards a society that is rooted in its own identity.

De-colonial project – Critically reframes and challenges Western systems, foundations of colonialism, from Eurocentric toward reclaiming non-Western cultural, political, social memories.

Indigenous epistemologies – Educational response to colonialism deliberately seeking to recover indigenous learning processes.

Education – The use of resources to elevate people's awareness of relevant facts of their lives to therefore improve their abilities in acting within their best interests

1.3.3 Stating the Assumptions

The depth of learning increases when theoretical perspectives in the architectural design of learning spaces are used towards meeting current needs or problems in learning. Theoretical perspectives can encourage participatory experience, which can be regarded as another learning approach. Exposure to other learning processes such as participatory experience has the potential to encourage attitudes of interest towards acquiring knowledge; giving youth control of their learning which can assist them to clarify their concerns or questions because what they are learning is being practiced and they can experience it, thus they may achieve their learning goals. Learning by exposure to other peoples' experiences, observations of others, personal ideas and feelings influences learning by clarifying people's beliefs and actions as well as aiding in learners' meeting their goals.

1.3.4 Key Questions

The study examines architecture as an influence on improving the quality of education in schools located in peri-urban areas. The key question relates directly to the aim of the study. The key question therefore asks:

1. How can learning processes influence the design of learning spaces?

1.3.5 Secondary Questions

The above key question is further broken down into several sub-questions which will combine to answer the key question and relates to the objectives of the study. The sub-questions, therefore, ask the following:

2. What are African learning processes?
3. What are the learning spaces in de-colonial urban contexts?
4. How can African learning processes transform learning spaces?

1.3.6 Hypothesis

The study examines the influence learning processes will have on built form through understanding learning processes towards transformative learning spaces that are culturally relevant within de-colonial urban contexts.

1.4 CONCEPTS AND THEORIES

1.4.1 Introduction

These theories and concepts were selected to prove the hypothesis and answer the abovementioned questions to outline how learning processes can influence the built form. They represent the specific framework that the researcher will take in analysing and interpreting the gathered data.

1.4.2 Experiential Learning Theory

According to Kolb, this type of learning can be described as knowledge derived from experience. Experience is the underpinning for the formation of knowledge. The theory seeks a perspective on learning that integrates experience, awareness, reasoning, and activity. (Illeris, 2009:152,153)

While Dewey speaks of the integration of reasoning and activity, Kolb refers to Dewey and points out his learning cycle which reflects various means to learning, showing various learning styles necessary for effective reasoning and activity. Kolb differentiates between reasoning and activity rather than seeing them as united, despite his stated outset in Dewey's concept of experience. Kolb states that various learning styles are necessary, and to do so he depicts learning as separate sequences in a closed circle. (Illeris, 2009:152,153)

The theory argues that academic systems nowadays are structured with standardized assessments making it institutionalized with law and order that must be abided to or consequences are to follow take away from nature and allows fewer opportunities to cultivate teaching and learning. (Illeris, 2009:152,153). This theory also redefines the existing colonial approach to the architectural design of learning spaces as abovementioned.

1.4.2.1 Problem Based Education

Luckan (2016) asserts that understanding occurs when individuals have a personal interaction with the environment as stated by Savery and Duffy (1995). (Luckan,2016:59) Luckan (2016) also acknowledges there is a vital integration between environmental and social factors as well as individual internalization for effective learning to occur. (Luckan, 2016:59) Luckan (2016) further states in relating problems to context, it is argued that the stimulus for learning will inevitably be enhanced, as learners may relate learning to perceivable situated problems.

1.4.2.2 Threshold Learning Concept

Threshold concepts in education can be viewed as product; where something is developed in the mind, and process; as a transformative journey in stages, as defined by Walker (2012). It is through a theoretical perspective that an understanding of ideas is acquired (Walker, 2012). This be a transition. In Zimmerman's definition of transition, it is the transition from one stage to the next, in learning, which is regarded as a liminal stage. This stage in learning is transitional as learning happens in stages, thus learning be the liminal stage because it is here where obscurity concerning learning is clarified. Metaphorically, the liminal stage can be described as the tunnel metaphor where a process of learning shows obscurity and a light at the end of the tunnel seems dim or non-existent.

The liminal stage can be applied in the built environment, to reflect obscurity and clarity by spaces of reflective thinking. The direct implication of liminal space as a permanent process in the built environment is that it starts to suggest a constantly responsive environment that considers the design for transformative spaces where spaces of reflective learning; being the spaces for transition in learning, are between other spaces of formal and informal participatory experience, thus creating transformative spaces of learning.

1.4.3 Existential Theory

To achieve the connection between the built environment its relevance to culture and tradition, the study turns to existential theory because the built environment is in pursuit of a building that its users can relate to. Since isiZulu ethnic tribe is the culture of the people of the peri-urban area, the isiZulu ethnic oral tradition spaces, isiZulu ethnic traditional homestead architecture, and the social organization of space are the cultural and traditional aspects that existential theory uses to connect the built environment to culture and tradition.

1.4.3.1 Concept of Tradition and Culture

Rapoport defines tradition as the product of transmission and having cultural origins involving a common group of people. (Mthethwa,2001:26) Tradition is identified with conservatism in the sense of accepting the past thus ensuring continuity. (Mthethwa,2001:27) People transfer cultural significance by translating patterns by which a group of people relates to, which is what formulates culture, into built form. (Mthethwa,2001:27)

1.4.4 Placemaking Concept

Placemaking refers to a practice through integration, by which people can create a character of public places to generate ownership of place. (PPS, 2015) Placemaking concept is appropriate because it comprises principles aimed for communities which means it is people-centred and makes the most of local community amenities.

1.4.5 Environmental Psychology

Bell (1996) considers education as a central component of the interaction of the youth and provides them with the tools for life. Accordingly, the effects of the design of learning environments on the learning process have been of great interest to researchers (Bell, 1996:494). If design features are affecting the learning process negatively, they must be remedied to allow educational goals to be attained. If a design change in the learning environment can increase the effectiveness of education, the better (Bell, 1996:495).

1.4.6 Urban Design Theory

1.4.6.1 Lost Space Theory

A space that has been left over or forgotten amongst the urban fabric are called lost spaces. They are voids within the urban fabric that disrupt the continuity of the urban fabric. These are places in need of rejuvenation for them to fully contribute to the surrounding area. (Harborth, 2010)

1.4.6.2 Figure Ground Theory

Figure ground is described as land coverage of buildings as to the open ground. It expresses the relationship between solid and void to understand the urban fabric thus identifying patterns of the urban fabric. When the dialogue of buildings and open ground are consistent, the spatial network lean towards operating effectively. (Harborth, 2010)

1.4.6.3 Linkage Theory

Linkage theory creates opportunities that connect the surrounding nodes and buildings within the urban fabric. The more the opportunities to connect the urban fabric, the continuity of the urban fabric is maintained resulting in a connected urban fabric. (Harborth, 2010)

1.5 RESEARCH METHODS AND MATERIALS

1.5.1 Introduction

Two components constitute the research methods and materials employed in this dissertation. Secondary research forms the first component. This involves an extensive review of the literature regarding the subject matter. Primary research was used to gather information employing relevant interviews and case studies.

1.5.2 Research Design

This research is a study that draws from verifiable evidence through observation and experience, thus making it empirical in nature. Due to the type of research problem being non-numeric, the research design is qualitative research because it is descriptive; rather than predictive. The outline of the research design reflects a qualitative research study, which involves the tools used to gather information, how the information is gathered and analysed.

1.5.3 Research Methods

There are two components constitute the research methods and materials employed in this dissertation. Firstly, primary research is used to gather information utilizing relevant interviews and case studies. Secondary research forms the second component. This involves an extensive review of the literature regarding the subject matter. To outline the research design of the dissertation, the procedures for data collection are below.

1.5.3.1 Secondary Data Collection

Exploration of existing architectural and educational concepts and theories refined and looked at by other researchers in the field of study regarding the issues covered by the research topic. The sources included:

- published books
- journals
- past dissertations
- articles
- academic papers
- online
- reports

Precedent Studies

The precedent studies are selected using the non-random purposeful sampling method because they represent revitalized learning processes in similar contexts to that of the research study. The intention is to draw a discussion between the theoretical framework and literature review towards an architectural response.

Literature Review

The literature is used to gather views expressed by authors that have written material on educational literature, concepts, and theories. The theories and literature have been structured across four parts, determined by the interrelated questions outlined in the key questions and informed by the theories and concepts used to underpin data deemed relevant to the research. The secondary data sources: published books, journals, past dissertations, articles, academic papers, online sources, and reports are included in the literature review.

The sources assisted in, understanding the idea of what learning processes are, and the reality of how learning processes are facilitated in the area of study. The literature review begins with what learning processes are, however, to gain an understanding of how learning processes are facilitated in the area of study, an understanding of why the learning processes is facilitated the way they are is researched, and this is what the literature review achieves. Chapter two elaborates on threshold concepts in education, which focuses on a lens of learning processes and sets to unpack, analyse, and discuss this through the literature. Learning processes and de-colonial education are the focus of discussion.

Chapter three elaborates on learning spaces in de-colonized urban contexts which focuses on unpacking learning processes. The research findings reflect how learning processes are imposed on learners and how learning environments are just as imposing on the learners. These learning environments which are school buildings are just as imposing on learners today because they are not architecturally designed to encourage an embrace for learning. The literature review unpacks how institutionalized school buildings can demotivate the learner and derail the culture of learning. The area of study is underprivileged, and this creates a challenge for learners because schools lack resources to support their learning.

The research study applied theories and concepts to create a relationship between built form and its users through culture because the area of study is rich in ethnic culture. Cultural principles and environments that learners are familiar with are mentioned which can create an open, lively, and natural architecture to connect the learners to education so that they may establish a motivation to learn as well as a culture of learning. This was inspired by African philosophy in education literature research findings. The discussion sought to revolutionize imposed learning processes with liberated and de-institutionalized learning environments, as well as to provide constantly accessible learning resources for gaining knowledge, with consideration of precedent studies. This supports the notion that nothing should inhibit or limit the ability to learn.

Chapter four involves transformative learning spaces that focus on how the research findings may remedy the reality of how learning processes are facilitated in the area of study. Theories from which concepts are supported are unpacked, analysed, and discussed to suggest a means in which to address the research problem to create a responsive architecture that cultivates a culture of learning. This chapter contemplates alternative learning environments, hard and soft learning spaces, and rethinks learning spaces and how learning is facilitated in these spaces with consideration of a precedent study.

Finally, chapter five elaborates on learning processes as a transformative influence on built form and focuses on key principles of a case study to take into consideration in achieving a liberated and de-institutionalized learning environment that has constantly accessible learning resources.

1.5.3.2 Primary Data Collection

The sampling strategy of this research is non-random purposeful sampling because the researcher intends to select all the informants. The reason is that they each carry specific knowledge that is vital to the dissertation. The sample size of the case study, *Grantleigh Science Centre*, consists of one informant who is the architect of the case study. The sample size of *Umlazi Commercial Technical Highschool* consists of two informants who are educators in the school located in the peri-urban area where the research study is based. This sampling strategy is to facilitate engagement with those involved who can provide relevant information. Engagement with all informants is ethical through informed consent, providing anonymity where required.

Case Study

Fieldwork through a case study approach is observed to ground the research by gathering empirical research to investigate the research problem within an underprivileged peri-urban context. The case study *Grantleigh Science Centre* is analysed on principles discussed in the theoretical framework to see the relevance and applicability of the concepts defined within it. Photographs, observations, assessing building spaces, and experiences relevant to the study are collected for evidence that supports and proves the literature of the research study. Drawings are obtained and analysed with conclusions supported by photographic data.

Qualitative Interviews

The data collection instrument is interview schedules with set questions that are open-ended to allow for elaborated answers and further engagement on the topic. Information is gathered through semi-structured interviews with key informants:

TJ Architects of the *Grantleigh Science Centre* offers information that is applicable and relevant to the intended locally based design. The practicing architect is questioned about the design and intentions of the case study to draw lessons relevant to the case study with regards to learning processes and the influence of learning on the built form to stimulate learners for a culture of learning. Refer to appendix I interview schedule A, informant 1.

Umlazi Commercial Technical High School offers information that is applicable and relevant to the intended locally based design. The educators that are interviewed offer insight into the learning barriers encountered by the youth which impedes their experience of learning and does not encourage a culture to learn. Refer to appendix II, interview schedule B, informant 1 and informant 2. Below figure 1.5i is a summary diagram of the sections that inform the research study.

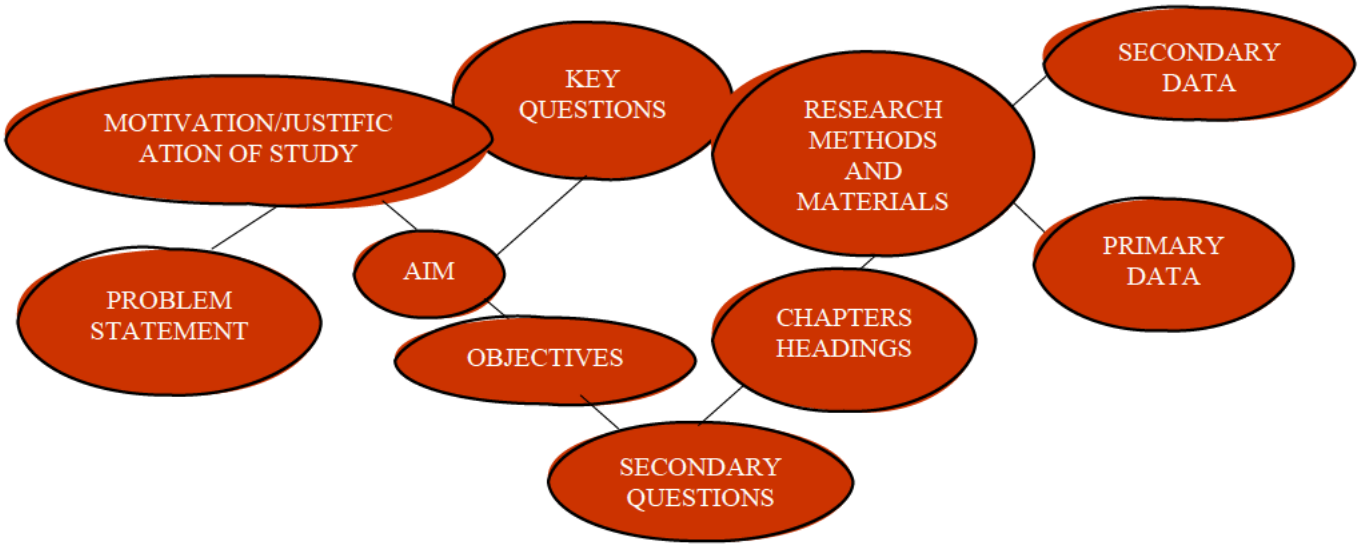

Figure 1.5 i: A summary diagram of sections informing the research study. (Author)

Below (Fig 1.5 ii) is a summary diagram of the learning theories.

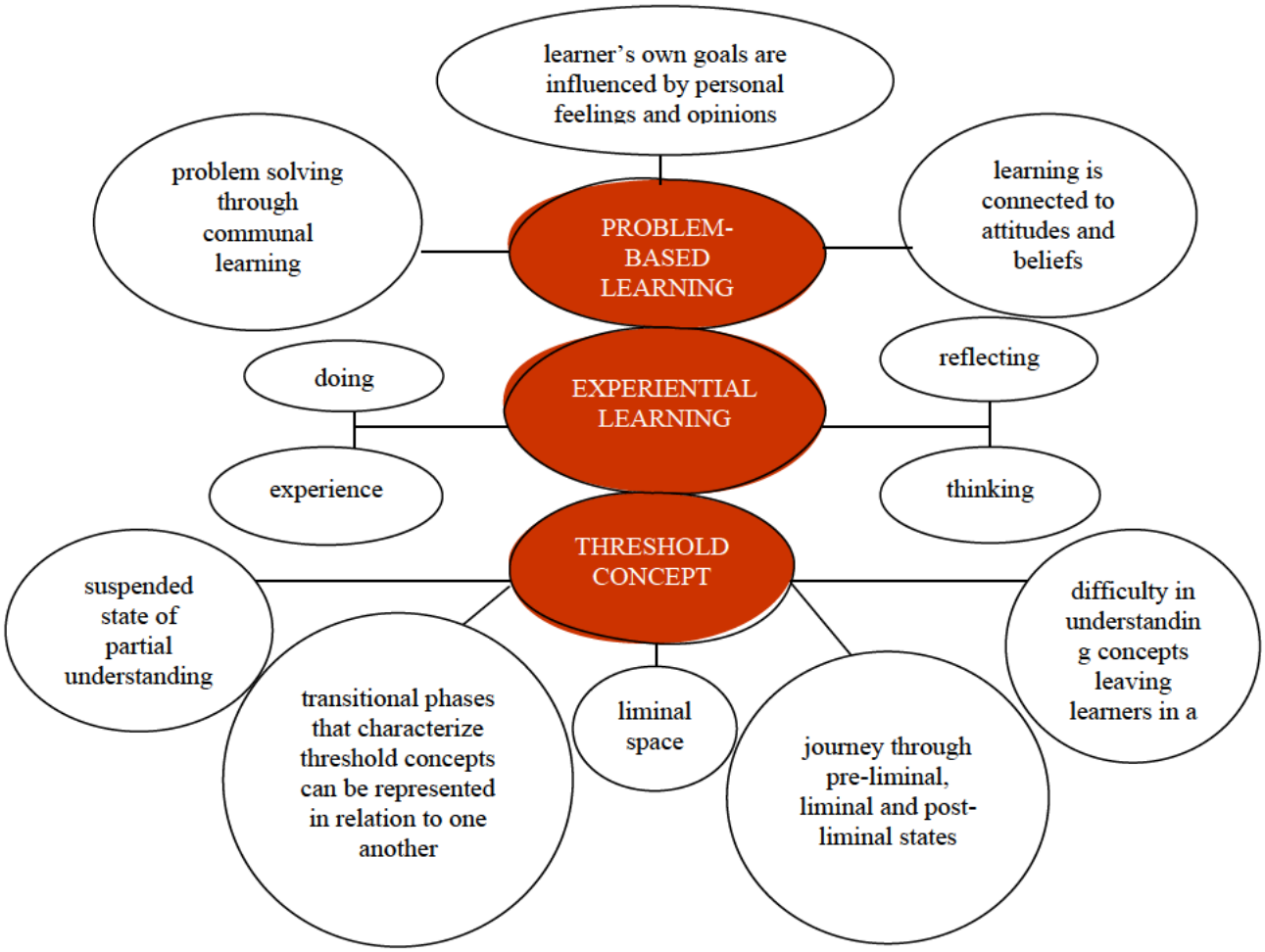

Figure 1.5 ii: A summary diagram showing learning theories. (Author)

Below (Fig 1.5 iii) is a summary diagram showing how the learning theories, architectural theories, and concepts all relate to one another.

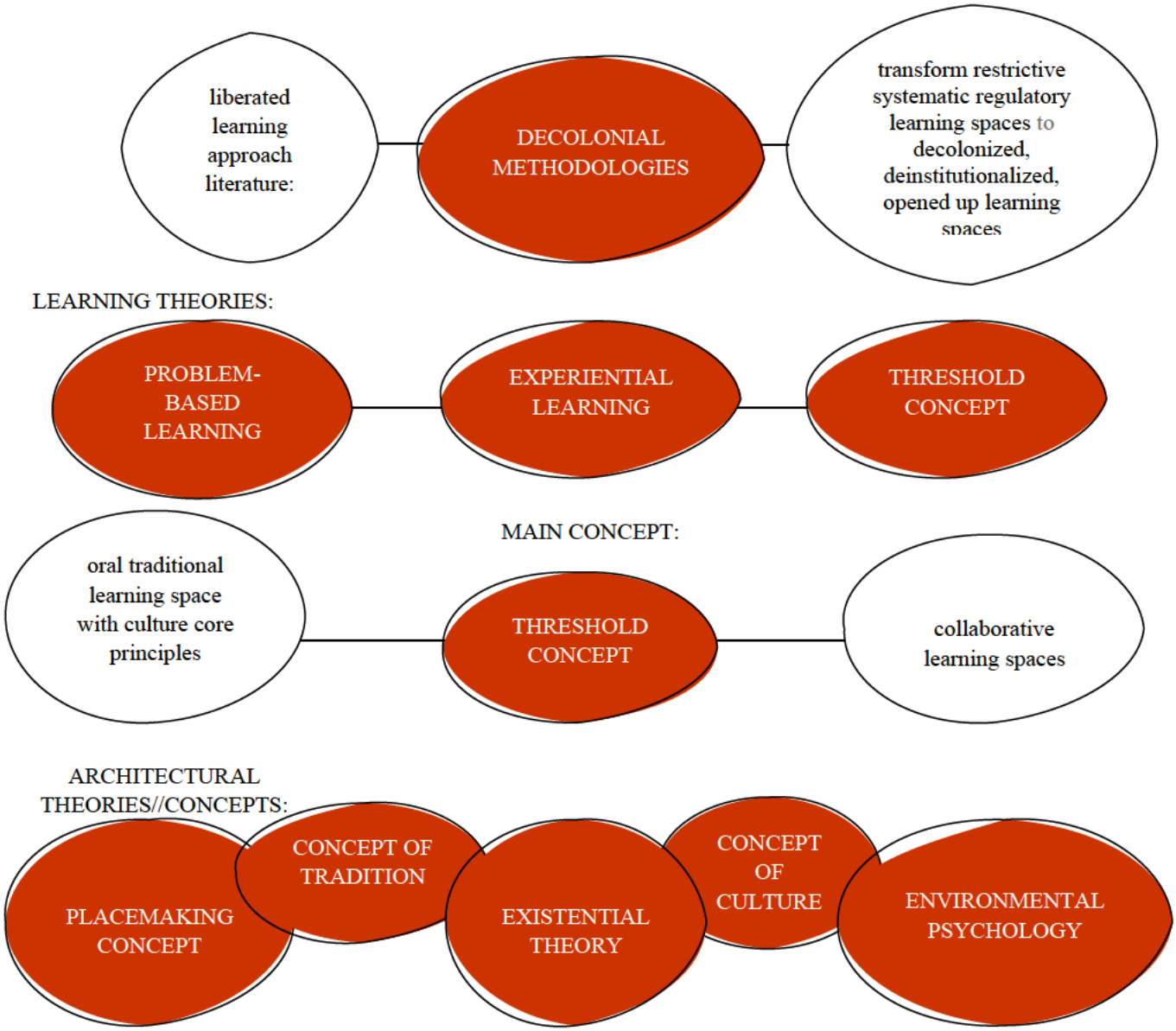

Figure 1.5 iii: A summary diagram showing learning theories and architectural theories. (Author)

Below Fig 1.5 iv is a summary diagram showing the architectural theories and how they all relate to one another.

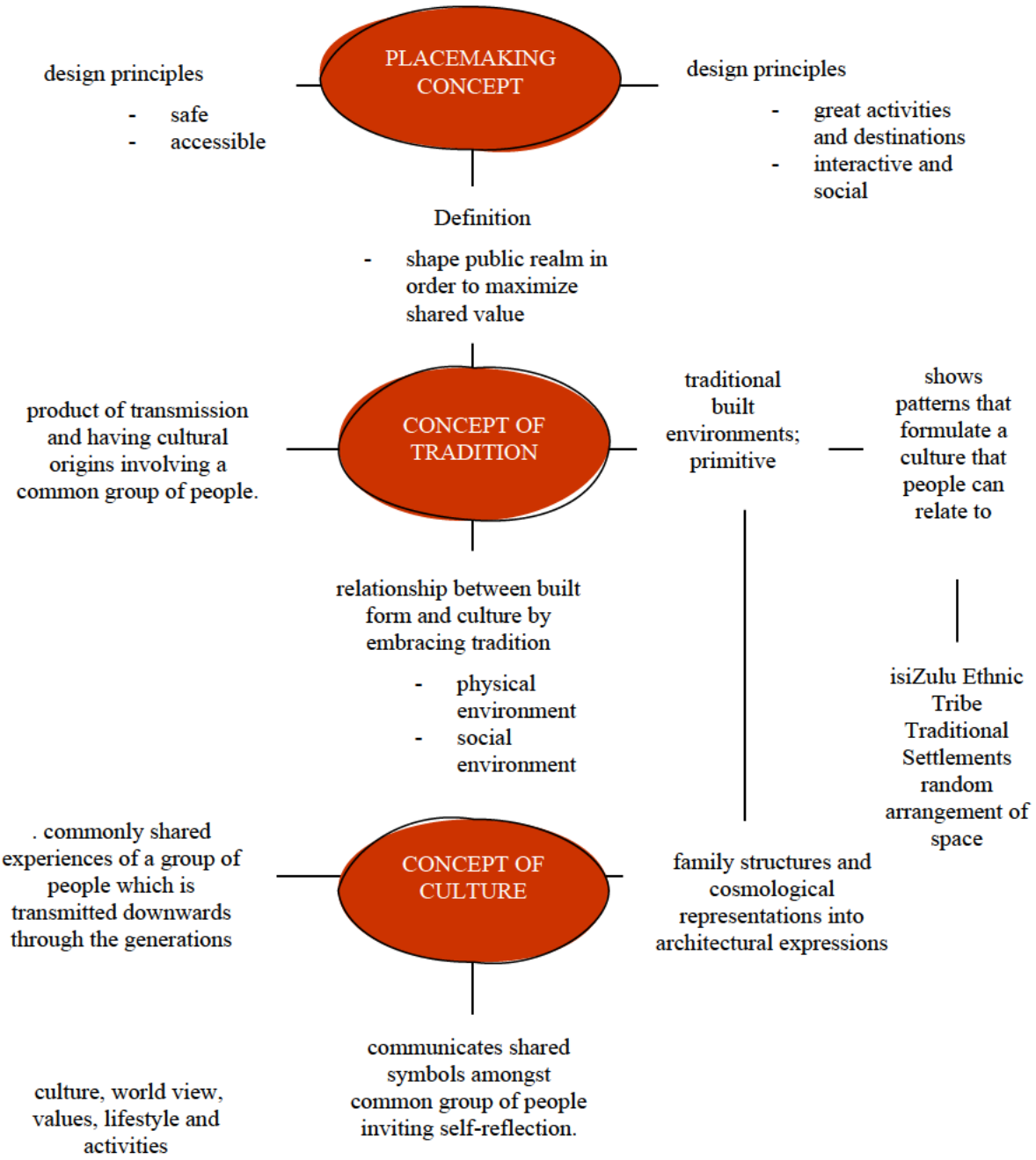

Figure 1.5 iv: A summary diagram showing architectural theories. (Author)

1.5.4 Summary

Below Table 1.5.4 summarizes chapter one that includes the objectives, research questions, data collection, data analysis, and data presentation.

	Objectives	Research Questions	Data Collection Questions	Data Sources	Sample Size	Data Collection Methods	Data Analysis Method	Data Presentation Forms and Style
1.	Explore learning processes to determine how this influences-built form thus creating a theoretically responsive learning environment.	How can learning processes influence the design of learning spaces?	Why are there less public learning infrastructure than there are schools?	Websites	Two informants	Semi-structured interviews	Photographs, observations, drawings, audio recording, transcribing	Text/narrative
2.	Explore learning processes to decolonize learning processes in urban contexts	What are learning processes?	What is your understanding of learning processes?	Journals, books, websites	-	Literature review	Drawings, study data	Text/narrative
3.	Generating decolonized learning processes to influence built form through architectural theories and learning theories towards a physical and social environment that reflects a culturally connected spatial experience	What are learning spaces in decolonial urban contexts?	What about the learning processes of schools can change to address pedagogical barriers?	Journals, books, websites, theses	-	Literature review	Drawings, study data	Pictures, text/narrative
4.	Gain an understanding of the psychological impact of decolonized learning processes to influence built form and demonstrate African learning processes in transformative learning spaces through a proposed Learning Centre in Umlazi	How can African learning processes transform learning spaces?	How can learning processes influence the design of the building?	Built form, journals, books, websites, theses	One informant	Semi-structured interviews, case study, precedent study	Photographs, observations, drawings, audio recording, transcribing	Pictures, text/narrative

Table 1.5.4: A summary diagram of sections informing the research study. (Author)

1.6 CONCLUSION

This chapter establishes the approaches employed to gather data. The data collected is analysed and identifies sources to be engaged with as part of the research process. Various data collection methods found by the author are referenced. The material collected sets out the theoretical and conceptual framework which is referred to throughout the research study towards transformative learning environments.

CHAPTER TWO

THRESHOLD CONCEPTS IN EDUCATION

2.1 INTRODUCTION

For this study to be well-grounded and provide genuine insight into the influence of learning processes, understanding of learning spaces, and its application to architectural design, it is necessary to first gain some background information regarding the topic. Chapter two intends to do this by looking into barriers to learning and how this affects today's African society. The research study acknowledges Nelson Mandela whereby he states knowledge is influential and can transform the world. (Project, 2003) The research study intends to look at how the role of architecture in African societies can contribute as a counter-hegemonic force in changing African societies for the better through education.

2.2 LEARNING PROCESSES

2.2.1 Defining Learning Processes

As recognized by Marx (1970), the research acknowledges that learning processes are concerned with the behaviour which can be identified as resulting from the previous behaviour of the individual. Individuals exist within a community and encounter experiences as a collective, influencing learned behaviours. African Philosophy in Education presented by Venter (1970) states that learning in African culture reflects community life. Thus, as both Marx (1970) and Venter (2019) suggest, individuals who live in a community life culture are subject to be influenced by shared experiences.

2.2.2 Dynamics of Learning Processes

Education in African society is institutionalized and systematic because of imposed colonial ideologies. In peri-urban contexts, education with a Western worldview cannot respond appropriately to African challenges in society, as the cultures are not the same. Education with an African worldview is thus appropriate for such. Thus, a transformation through African character defined by the culture which is established in its attitudes and aspirations can deinstitutionalize and decolonize learning processes that strive on standardized assessments, systems of behaviour, restrictive associations according to grade and reimagine the existing institutionalized and systematic learning environments.

This view is shared by Breidlid (2009) in saying that this is a counter-hegemonic discourse to overcome Africa's challenges which require a re-examination of learning processes with a view of extracting lessons to be of use. Growth in African development is achieved through the African viewpoint. (Breidlid, 2009: 141) Thus learning processes with an African viewpoint is more relevant to education in peri-urban contexts. Unpacking dynamics of learning processes is essential to address pedagogical barriers in peri-urban contexts.

The learning processes in peri-urban contexts lack features of African (indigenous) worldviews. The article of Chivaura (2006) proceeds to analyse Science Technology Engineering Maths (STEM) subjects in schools, which are perceived to develop learners into innovators of the 21st century and have been the driver of education in schools.

The research study is of the perspective that schools in peri-urban contexts prioritize STEM subjects as compulsory through the journey of higher education, however, still implement this learning through the lens of becoming employees because certification is attained to seek employment, instead of becoming innovators that can create solutions for African challenges in society. Another aspect of education in South Africa is that what is learned is detached from the real world; there lacks relevance between the two. Education can be learned in conjunction with happenings in the real world to be able to connect the two.

Particularly in Sub-Saharan Africa, the modernist movement brought knowledge that dominated development, whereas the African viewpoint has been viewed as incompetent. Kearney's explanation of a viewpoint is a culturally organized thought that determines much of people's behaviour and decision making. (Kearney, 1984: 1). Crossman and Devisch (2002) emphasize the risk of adopting viewpoints of other countries to alleviate African social issues. African development can be achieved through an African worldview (Chivaura, 2006: 217).

2.2.3 Global Perspective of Colonization

Sri Lanka, an island country in South Asia, is previously colonized by Portugal, the Netherlands, and Great Britain. Great Britain is the last colonizer before the islands independence and their influence surpassed all others. This led to the flourish in education, amongst other developments in the country, such as schools, official buildings, as well as other infrastructure. (Verlarde, 2018) This impacted the learning processes of Sri Lanka because Sri Lanka experiences low literacy levels due to insufficient education facilities. According to the social conditions of Sri Lanka report, free education facilities resulted in a rapid exhilaration in literacy levels to pursue higher education. (Department of Census and Statistics, 2019)

The invasion into Africa by Europe was driven by economic, political, and social factors, following the fall of the slave trade. The search for profits of investments prompted their take-over of Africa. (Iweriebor, 2006) Due to social factors, social problems grew in Europe because of lack of inclusivity in new the industries. Therefore, colonies were acquired to export populations. Leading to the establishment of settler-colonies in Africa.

In the Sub-Saharan Africa region, Burundi experiences low literacy levels in adults and youth because they are subjected to pedagogical challenges. In contexts such as these, youth have yet to overcome such barriers in education. (UNESCO, 2006)

2.2.4 Local Perspective of Colonization in Education

To understand the decolonization and deinstitutionalization of education that the research studies, there must be an understanding of colonization in education. This is a pivotal aspect of the research because it gives insight into the dynamics that have created education in South Africa to be what it is at present.

Badsha (2000) states the history of South Africa from the days of colonialism. Cape Town in South Africa had farms of products that were in demand overseas, and thus the port was involved in trading activities with countries overseas. (Badsha, 2000)

As noted by Badsha (2000), Cape Town remained under Dutch rule until 1795 before it was ruled by the British. Due to the British invading the Cape Town territory of the Dutch, the Dutch settlers hiked North, to avoid living under British rule. When they headed to Natal, they negotiated to meet with the Zulu king to rule over the land. The Zulu king granted them an area of land and when the Dutch delegation left, they were ambushed and killed by the Zulu. The Dutch then retaliated, which led to the downfall of the Zulu. (Badsha, 2000) These events marked the colonization of South Africa.

The British and the Dutch, according to Badsha (2000), ended up going at war with one another until they eventually made peace. Relations between the marginalized and colonizers then grew strenuous. Policies of the British in favour of colonizers were established followed by the discriminatory legislation of the marginalized people. This encouraged the opposition of the marginalized. (Badsha, 2000)

Badsha (2000) acknowledges the colonial rule ushered in the importance of social, political, and economic developments. The marginalized were then enrolled in schools and new identities were imposed upon them. Nothing of their past was given recognition. As noted by Badsha (2000), the marginalized felt degraded and rejected the education that degraded them by escaping the schools. The dominion of the colonizers could not hold back the resistance of the marginalized as they organized themselves in defiance. Buildings of the state from the establishment of the colonizers, such as hospital services, and churches. (Badsha, 2000)

Thereafter, Badsha (2000) states the process of instituting apartheid took place. The systematic organization of South African community, government, and monetary contexts were grounded on the segregation of the marginalized and the colonizers. In 1953, legislations were formulated such as the Bantu Education Act which ended the missionary movement. (Badsha, 2000)

The purpose of the Bantu Education Act was the need for cheap labour, as stated by Badsha (2000). Children learned to read and write for employment. Mobilizations resulted due to hindrances encountered by the youth. Official education taught in inferior languages was disturbed in the retaliation of unfamiliar teaching and learning cultures. Moving into the democratic era, South African education is influenced by the heritage from apartheid. Its reconstruction for inclusivity is noted. (Badsha, 2000)

The research study argues that the education system in peri-urban areas of today do not encourage innovative thinkers that can move the country forward because these schools are driven by behaviourist pedagogy learning approaches and lack educational resources. It is structured to produce people to be employable because of the certification that is attained for seeking employment. This is similar to the initial idea behind the creation of schools from the days of colonization where the marginalized were taught to read and write in a foreign language to be able to carry out work for Dutch and British colonies. With the transition into the democratic era, learning environments should reflect as transformed from the past, with resources encouraging forward-thinking.

2.3 DECOLONIZED EDUCATION

2.3.1 Counter-Hegemonic Discourse Towards a Decolonized Education

Land, Rattray, and Vivian (2014) view threshold concept theory as encouraging opposition of dominant thinking. In other words, to think in other ways. The threshold is defined as transitioning from one place to another. Once the threshold is reached something changes and something else happens. (Collinsdictionary.com, 2019) Thus Threshold concepts in education can be viewed as product; where something is developed in the mind, and process; as a transformative journey in stages with a different outcome to the initial state.

An understanding of ideas is acquired through a theoretical perspective (Walker, 2012). This stage in learning is seen as liminal space because it is here where difficulties concerning learning are clarified. It is described as the tunnel metaphor where a sense of direction or a process may become obscured and through this process, the light at the end of the tunnel seems dim or non-existent. It is a stage in learning that is transformative because it involves the cognitive shift between ideas and knowledge. (Land, Rattray, and Vivian, 2014)

Difficulty in understanding concepts or ideas that leave someone in a state of partial understanding, which is referred to in the study as threshold concepts, may leave the learner in partial understanding. Understandings that learners attain mean thresholds are overcome which brings a sense of achievement. It becomes unsettling where they find themselves caught in thresholds that they cannot overcome. (Land, Meyer, Bailile, 2018; 2)

Land, Meyer, Bailile (2018) challenges the theoretical boundaries of the threshold's framework. This is concerning the evolving learning process, how learners struggle with understanding knowledge and how to attain cognitive understanding in a dynamic way. (Land, Meyer, Bailile, 2018; 3)

Land, Meyer, Bailile (2018) notes if regarded as a transition through preliminary to post liminal stages, the transitional phases that characterize threshold concepts are characterized concerning one another. The transition towards attaining threshold concept commences by an encounter with a concept or idea that is not easily understood in the preliminary stage. The preliminary stage within the threshold concept is of an inquisitive nature because it unsettles prior understanding and provokes a stage of liminality. Within the liminal stage, incorporation of unfamiliar information with better understanding is acquired, prompting neglect of familiar information with lack of understanding.

This reconfiguration causes a shift which influences the being of a person, which means threshold concept reconstitutes. Together, the preliminary to post liminal stages enlighten learners through unfamiliar information with better understanding. With better understanding, learners' transition into better cognitive understanding towards the post liminal stage where learning is transformed. These dynamics are summarised in the figure 2.3.1 below. (Land, Meyer, Bailile, 2018; 3)

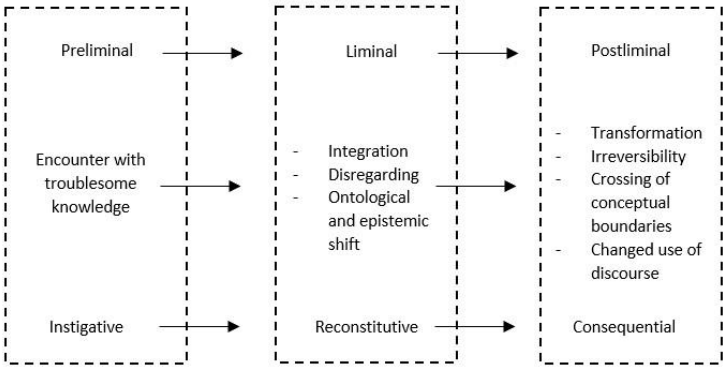

Figure 2.3.1: A view of the features of threshold concepts. (Author)

Furthermore, Land, Meyer, Bailile (2018) states this transformational process of thinking with partial understanding left unspoken comes to be engaged with and gradually understood. (Land, Meyer, Bailile, 2018; 4) Transformative learning consists of experiencing transition of reasoning, emotions, and activity. It brings a cognitive transition that irreversibly changes how people perceive themselves in the world. (O'Sullivan et al, 2002, 11) (Land, Meyer, Bailile, 2018; 5) Julie Timmermans, as noted by Land, Meyer, Bailile (2018) points to transformative learning as an approach for learners to participate in discussion, and become inquisitive of learning content, instead of submissively receiving information. (Land, Meyer, Bailile, 2018; 6)

Land, Meyer, Bailile, (2018) states transformative learning is stimulated by activities and resources that offer learners other ways of thinking, than what they already know, such as interpretations from diverse viewpoints, field trips, visuals to encourage their inquisitive nature. (Land, Meyer, Bailile, 2018; 6) With the study analysing learning processes in urban contexts, these strategies would contribute positively towards encouraging innovative thinkers that can move the country forward. Learning that simultaneously can be related to the practicality of the world with frequent access to guidance towards their aspiring careers is vital. Learning environments need to move away from the ones created by colonizers who imposed their way of life in Africa. The way of life in Africa should reflect in the learning environments of Africa.

Victor Turner, as noted by Land, Meyer, Bailile (2018) terms liminality as an in-between period when the ambiguities of partial understanding are addressed without pressure but with freedom. (Land, Meyer, Bailile, 2018; 7) As noted by Land, Meyer, Bailile (2018), active engagement with the understanding of one's thought process relating to grammar was encouraged through a reflective task about the understanding of one's thought process to help students overcome partial understanding. (Land, Meyer, Bailile, 2018; 19)

These included collaborative group work, demonstrating initiative towards the problem areas which requires confidence and asking for help practice by tests that target weak areas, being surrounded by inspiration from peers, and a fun atmosphere to learning. Through self-reflective exercises, which means a reflection of self-cognition; the understanding of one's thought process is encouraged.

Work achieved within self-reflective exercise enhances the learner's ability for accurate self-evaluation, which relates to the transition of the preliminary to post liminal stages. This is an approach to enlighten learners with overcoming their barriers in learning. (Land, Meyer, Bailile, 2018; 20).

2.4 UNDERSTANDING LEARNING DIMENSIONS

Before understanding the behaviourist and constructivist pedagogic approach, the research study must break down the understanding of learning. Learning includes the psychological, biological, and social depicted in the bubble above in the illustration. The central box depicts learning itself showing learning types, barriers, and structures. On either side the illustration depicts learning having internal and external conditions that are directly involved in the process of learning. Below is figure 2.4i showing the possible applications of learning. These conditions are involved in any learning approach. (Illeris, 2009:8)

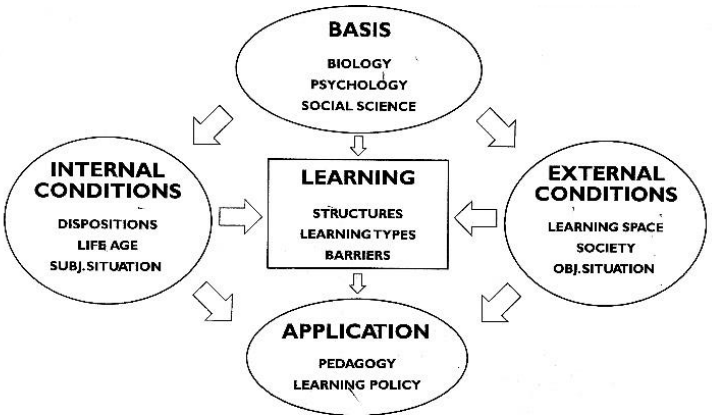

Figure 2.4 i: The main areas of understanding of learning. (Source: Illeris, 2009:8)

The research study acknowledges that in any learning style, different elements are always linked such as how the learning style is facilitated with regards to the application that can have an impact psychologically and socially. Along with this the nature and character of the learning space and society can also have an impact psychologically and socially.

2.5 BEHAVIOURISM AND CONSTRUCTIVISM PEDAGOGIC APPROACH

Learning dimensions as stated by Illeris (2009) play a critical role in the approach towards pedagogy; the study of the methods and activities of teaching with a theoretical concept that is applied in practice. Such pedagogies are behaviourist and constructivist. They both have their character, influence, psychological and social impact; dissimilar from each other.

2.5.1 Behaviourist Approach

Luckan (2016) asserts that transformation in pedagogic approaches from the behaviourist approach to the constructivist approach has had implications for learning space development. Conventional learning spaces implement a behaviourist pedagogic approach that is grounded in the transmission of knowledge from the teacher to the learner. In this approach to learning the learning is facilitated by the teacher and learners follow instructions given by the teacher. This means learners do not have control of their learning process. (Luckan, 2016:56)

The behaviourist paradigm focused on following instructions led by the teacher. It implements teaching and learning devices for independent work. (Luckan, 2016:57) Learners end up focussing on the objective of attaining knowledge which is considered to be of greater significance than the theoretical application into practice.

The research study relates what is stated by Luckan (2016) about behaviorist approach to what Illeris (2009) says about understanding learning dimensions and concludes that learners undergo psychological and social impacts because the behaviorist approach learning style influenced seating in rows where learners are seated and open space in front for the teacher, as seen in conventional classroom learning spaces.

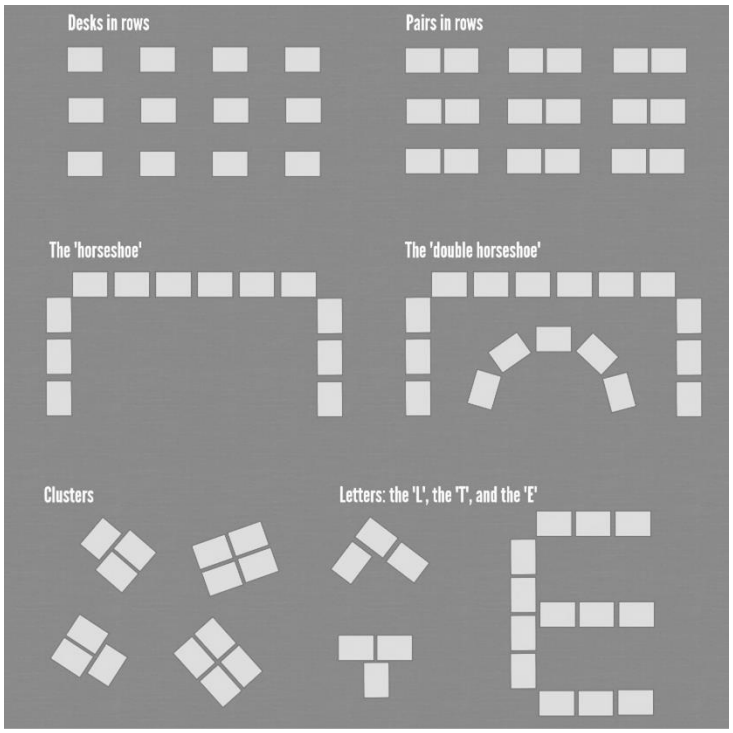

Figure 2.5.1 i: The classroom seating arrangements. (Source: www.teachermagazine.com)

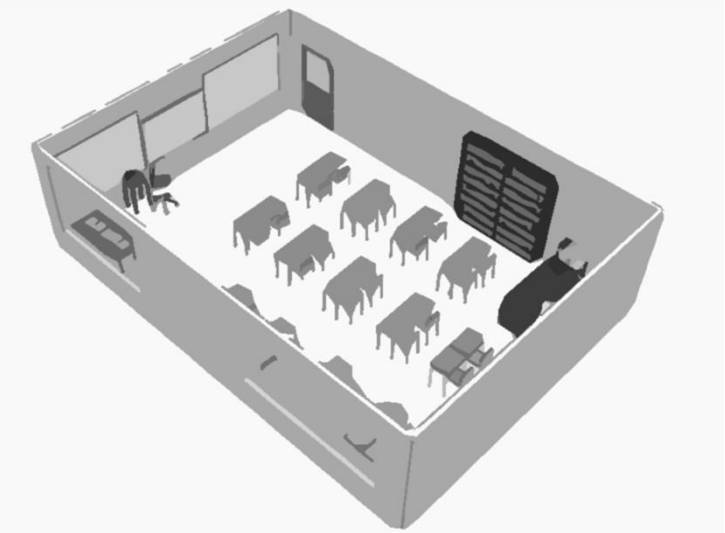

Figure 2.5.1 ii: The classroom seating arrangements. (Source: www.cadblocksfree.com)

The psychological and social impact is that such a rigid learning environment lessens creativity and imagination exploration as well as stimulation of the mind. It also does not encourage a social and communal nature because it focussed on individual learning.

2.5.2 Constructivist Approach

The shift from these approaches to a constructivist approach emphasizes learning and the construction of knowledge by learners. (Luckan, 2016:57). Luckan (2016) Constructivist pedagogy connects individual learners' cognitive constructions with the influences of social and environmental factors with an engaged learning paradigm. (Luckan, 2016:57). This is a learner-centered and appeals to learners because of its engaged approach to learning. The behaviorist approach lacks to capture the active and social characteristics of learners. 'Knowledge is rather idiosyncratically constructed or discovered.' (Luckan, 2016:58).

Wolff's (2003) literature describes project-based learning as being concerned with significance. It inspires construction of relations, correspondence, rational, such as sense of reasoning to outline and resolve difficulties. Project-based learning, much like problem-based learning as stated by Savery and Duffy (1995) in Luckan's (2016) literature, includes technology, creativity, meaningful learning, and incorporating authentic self-reflection and assessment to instil lifelong learning patterns (Wolff, 2003:5)

Wolff's (2003) literature questions how learning space should be constructed for activities in learning processes with a practical approach. Often, the learning space hinders collaborative learning by restricting the formation of groups. This hinders the creation of community, and activities that can allow learners participation in activities of authentic project-based learning.

To remove those barriers, Wolff (2003) acknowledges that Brubaker (1998) advocated the need for flexibility of

space in design features of the physical learning environment that permits diverse learning approaches, learning resources, learning spaces accessible to the community with a diversity of amenities that responds to modern learning expectations. (Wolff, 2003:3)

Transforming learning processes as described by Dede (1993) prepares learners for the workplace and in society as changing from the conventional attaining knowledge from teachers in classrooms approach to exposure to attaining knowledge through practical experience approaches. This approach includes cohesive learning, learning as a collective, and learning that includes the community all characterize project-based learning. (Wolff, 2003:4)

Gokhale (1995) describes learning as a collective group is to learn communally when attaining educational achievements. Bruffee (1995) stated that learning as a collective will offer learning outcomes towards better reasoning and cognition.

Wolff (2003) states characteristics necessary of space for learners consists of defining the abilities, and facilities necessary for learners; recognising spaces for learning to take place such as public centres, local high schools. In addition, recognising the characteristics of space within learning environments that can facilitate and enhance learning activities. (Wolff, 2003:33)

Learning activities and spaces can integrate people in activity areas, accessing information, providing a communal learning space, use of technology, calm areas, and community involvement.

Wolff (2003) labels learning activities and spaces as:

1. Communal learning
2. Collaboration learning
3. Computer lab
4. Calm areas
5. Staff nodes
6. Workshop rooms

1. Communal learning, much like a group learning area, serves the purposes of group discussions and tutoring. Learning space shall include chairs, portable writing tables, fenestrations, writable surfaces, freedom of movement, and proximity to calm areas.

2. Collaborative learning where learners can work collaboratively and independently on their work, with a mentor for guidance. The spaces have a mixture of independent workspaces and round table workspaces for collaborative learning. This is seen as a space with a sense of ownership because it has individual learning spaces and shared communal spaces.

3. Computer lab includes computers pods, tables and printers

4. Calm areas provide space for learners to study and self-reflect, should be in proximity to the communal learning and various locations where necessary.

5. Administrative spaces to organize, manage and facilitate the learning space

6. Workshop rooms accommodate machinery and equipment for practical learning tasks

Figure 2.5.2 below focuses on transitioning learners in and out of the learning space which includes the above-mentioned spaces which are designed with free flowing, open nature to space. (Wolff, 2003)

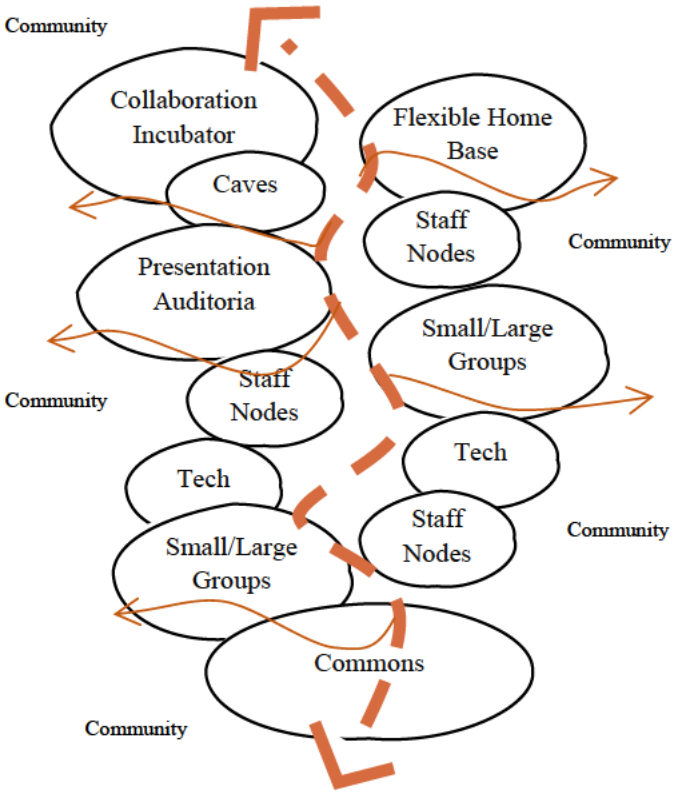

Figure 2.5.2i: The design features of learning environments. (Source: www.web.b.ebscohost.com.ukzn.idm.oclc.org)

Refer to figure 2.5.2ii for the Northern Beaches Christian School in Australia for a constructivist learning environment approach precedent study.

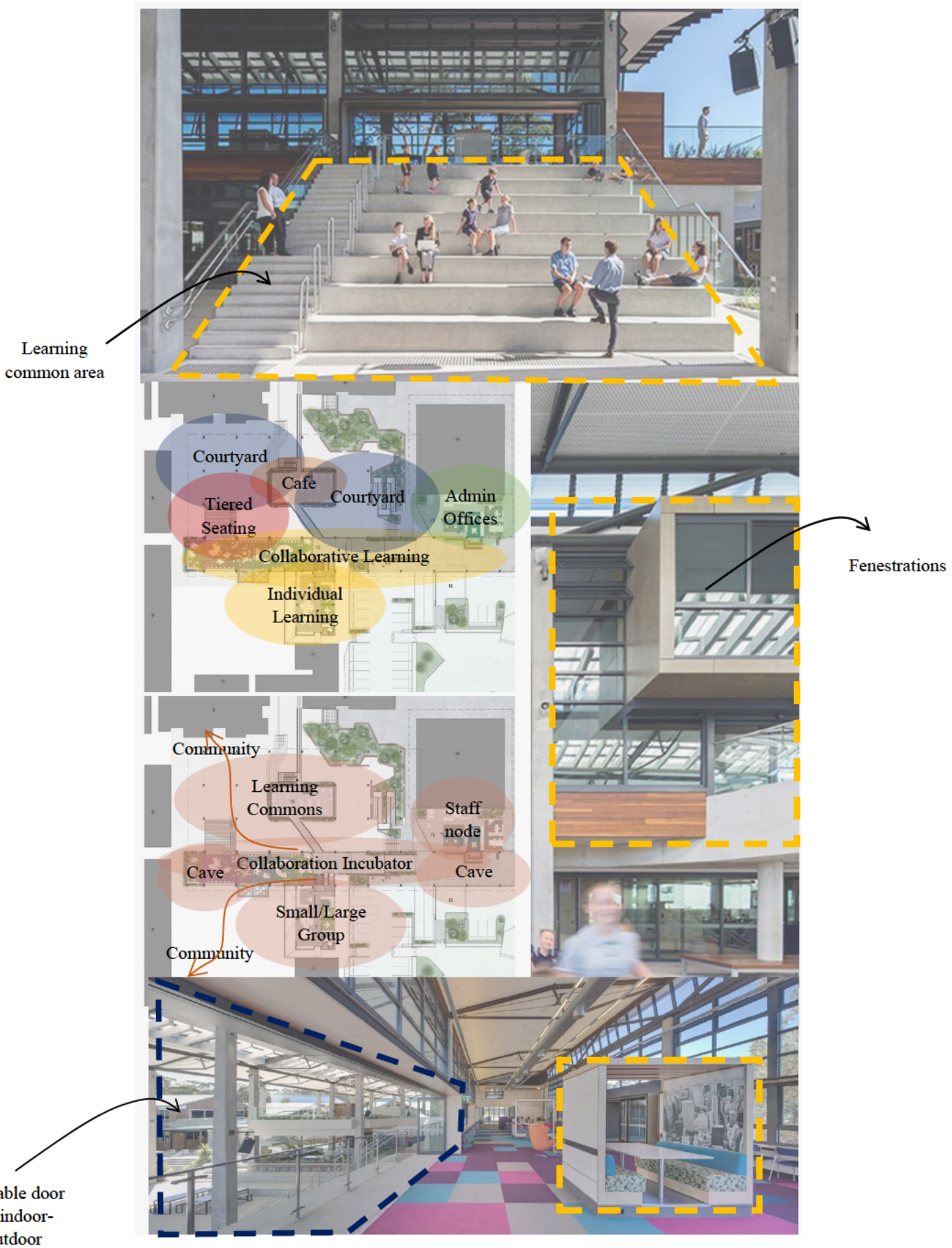

Figure 2.5.2ii: The Northern Beaches Christian School, Australia (Source: www.archdaily.com)

2.5.2.1 Technology Driven Design

The existing learning environments in the urban area which are schools learn knowledge in technical subjects, which have an immense background in technology, therefore it is only appropriate to propose a learning environment that is connected to technological advancements to facilitate learning and cultivate a stronger culture to learning. The learning centre is proposed as a technologically driven learning environment and is thus a design principle. (Luckan, 2016)

2.6 CONCLUSION

Land, Meyer, Bailile (2018) and Land, Rattray, Vivian (2014) speaks of the same literature of Threshold Concepts, although and Land, Rattray, Vivian (2014) differs due to their focus on the liminal stage as a transformative space regarding Semiotic Theory for a different perspective. They acknowledge the space before liminal space of knowledge as the signifier, which Land, Meyer, Bailile (2018) state as being a preliminary stage, and they acknowledge the space after the liminal space of knowledge as the signified, which Land, Meyer, Bailile (2018) state as posting liminal stage.

The process between the two works of literature has in common the tunnel metaphor comparison as the reference of the transformative learning journey. The research study notes Land, Meyer, Bailile (2018) transformative learning through Threshold Concepts as alternative points of view to better understand knowledge, and the research study shall consider these in the architectural design of a learning strategy for decolonized deinstitutionalized unrestricted learning processes for the understanding and not for performance and achievements.

CHAPTER THREE

LEARNING SPACES IN DECOLONIAL CONTEXTS

3.1 INTRODUCTION

Decolonizing the underlying dynamics of the learning processes brings an opportunity for education with a different view of learning which is envisioned for the research study. This chapter seeks to express the importance and benefits of the architecture of transformative learning. Such benefits are illustrated in contemporary architectural examples to provide a more thorough investigation. The discussion begins by presenting transformative learning through decolonizing education in Africa and how this can be achieved by an overview of African philosophy in Education. Relating such a discussion to architecture, this begins to show the direction of architecture in learning environments by the nature and character of spaces that can support decolonized education. This is all to connect education to challenges in African society.

3.2 PLACEMAKING CONCEPT

Special moments and interactions can happen in public spaces. Once these public spaces connect with one another, they become places that function successfully. For public spaces to be successfully special, they share the following four qualities: accessibility, activities, comfort, and sociability. (PPS, 2015) Figure 3.2 below is the place-making diagram that illustrates how these four qualities can be applied to create special public spaces. The research study focusses on the sociability quality of public space because the research study's main concept is Threshold Concept, and the vision is collaborative learning therefore interaction is vital in collaborative learning and should be designed for.

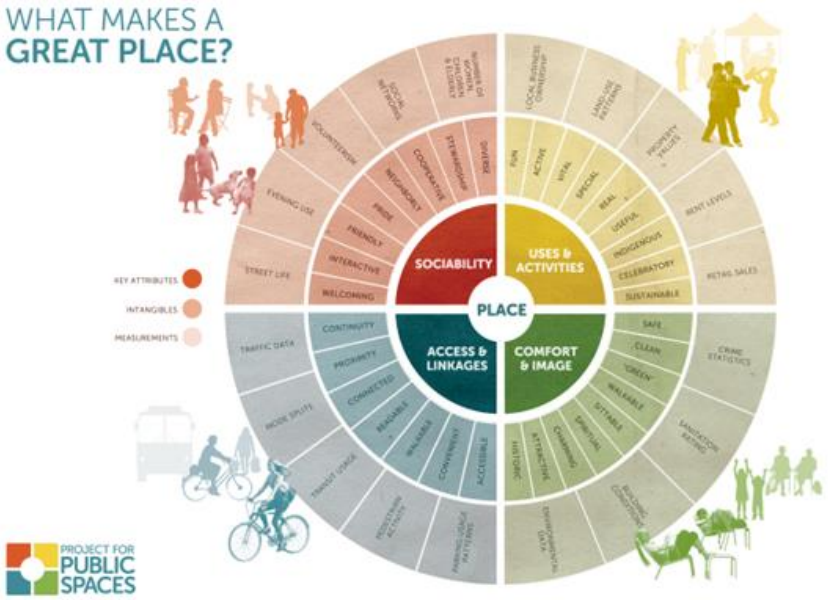

Figure 3.2: The placemaking diagram. (Source: www.pps.org)

The research study acknowledges that creating a sense of ownership is vital for the urban area because it is a community with a large youth population. Thus, they need to have a space they can claim as their own. This can be achieved if they identify with those spaces, which is where the place-making concept comes in to strengthen the association amongst society. (PPS, 2015)

Place-making means to outline a character of public space to bring meaning and spirit to a place. (PPS, 2015) Place-making concept is appropriate because it comprises principles aimed for communities which means it is people-centred and get the most out of local community amenities.

According to PPS (2015), place-making pays close attention to physical, social, and cultural qualities of a place. (PPS, 2015) Once people can relate to the physical environment and social environment, its users gain ownership of the space because space fulfils the needs of its users, for example, parks and festival marketplaces. The research interprets the physical environment and social environment of the peri-urban area of Umlazi as place as being how space is used, the atmosphere of the space, colours, and textures all add to the uniqueness of place. These will all be taken into consideration with the research study's main concept; Threshold Concept.

3.2.1 Accessible Design Principle

When the design of a street responds to people's needs, it comes to be a place that receives the community well. A pedestrian oriented street attracts pedestrians. (PPS, 2015) The peri-urban area is a walkable neighbourhood. The existing walkable neighbourhood is relevant for the accessible design principle of place-making concept. The analysis of the actions and lifestyles within the physical environment is for the relationship between built form and its users through culture.

As mentioned in the next section under Relationship between Built Form and its users through Culture; The Physical Environment, the walkable neighbourhood in 5th and 6th Avenues, Portland, Oregon, as shown in figure 3.2.1i below, have one-way streets that includes bus transport. The streets are pedestrian and transit-oriented with wide pavements and bus stops. (Travelportland, 2013) The research study learns from this that walkable neighbourhoods need wide sidewalk space for pedestrians to walk because transit transport is their means to travel.

Figure 3.2.1 i: A bus shelter for pedestrians. (Source: www.travelportland.com)

Parklets repurpose part of the street next to the sidewalk into a public space for people, making it a small park in an urban area (Gensler, 2015) Tri-park is a flexible, interactive parklet that is a playful, energetic area serving multiple users, as shown in the figure 3.2.1 ii below. It has fixed triangle planters with movable seating parts. This streetscape design is ideal for a walkable neighbourhood with pedestrians that walk for a considerable amount of time. To be able to have pause spaces such as these along the journey gives a user experience to the streetscape. The artistic nature of the parklet is attractive and reminiscent of public art, which is attractive to youth and can add happiness to the user experience of the streetscape. (Gensler, 2015)

Figure 3.2.1 ii: A Tri-park parklet next to the sidewalk of the main road. (Source: www.planning-org-uploaded-media.s3.amazonaws.com)

3.2.2 Activities and Destinations Design Principle

People desire to be in a place when it is lively and energetic. (PPS, 2015) The analysis of the actions and lifestyles within the physical environment is for the relationship between built form and its users through culture. The research study envisions the proposed typology as a destination building with the great activities and destinations, which is why the great activities and destinations principle of placemaking concept is relevant. As mentioned in the next section under Relationship between Built Form and its users through Culture; The Physical Environment, destination buildings are successfully designed places that attract people and inspires them to remain and return because they are attracted back to them.

Figures 3.2.2 i: A pop-up library in landscaped public space as a destination. (Source: www.designboom.com)

Figures 3.2.2 ii: A pop-up library in landscaped public space as a great destination. (Source: www.designboom.com)

The Pop-Up Library placed at the edge of a recently completed civic square in Toronto creates a lively hub within the neighbourhood. (Lohmann, 2015) Much like the Open-Air Library in Germany, books are donated by a book that is taken out which needs to be replaced by another book. The figures 3.2.2i and 3.2.2 ii above show the Pop-Up Library walls pivoting open like covers of a book to welcome people inside. (Lohmann, 2015)

This is the physical environment of the precedent that the study takes lessons from for how space is used which has lingering qualities because the use of space has a purpose and relates to the human activities that people are interested in. These distinctive characteristics create a character to the public space and thus placemaking is seen here. The study intends to learn from the precedent to apply lingering activities to street design for creating street as place and giving street more purpose than a transitional space. Moses Mabhida Imbizo Place is in Durban North and is integral to the urban design of the stadium as shown in figure 3.2.2 iii below.

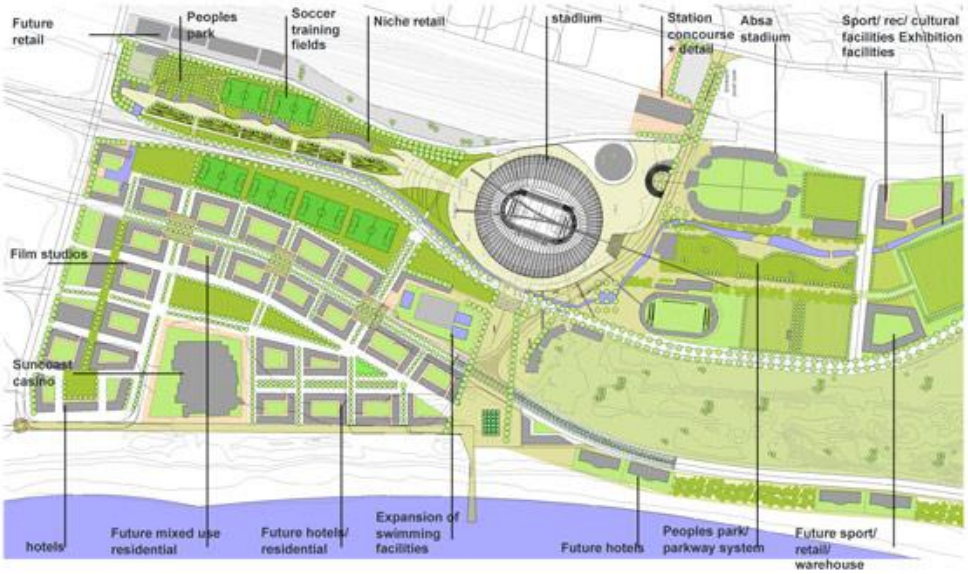

Figure 3.2.2 iii: The Moses Mabhida soft and hard surfaces landscape design of open spaces. (Source: www.worldlandscapearchitect.com)

Public space in the urban area has earthy brown and green colours of the natural landscape and grey of the tar road are the colours of public space which are mundane, and a mixture of hard and soft surfaces make up the textures of public space. The research learns from Moses Mabhida Stadium in Durban North, Durban, as shown in the figure 3.2.2 iv below, that well designed hard and soft surfaces and textures to public space can enhance the experience of such space its minimal palette of surfaces. (Holmes, 2011)

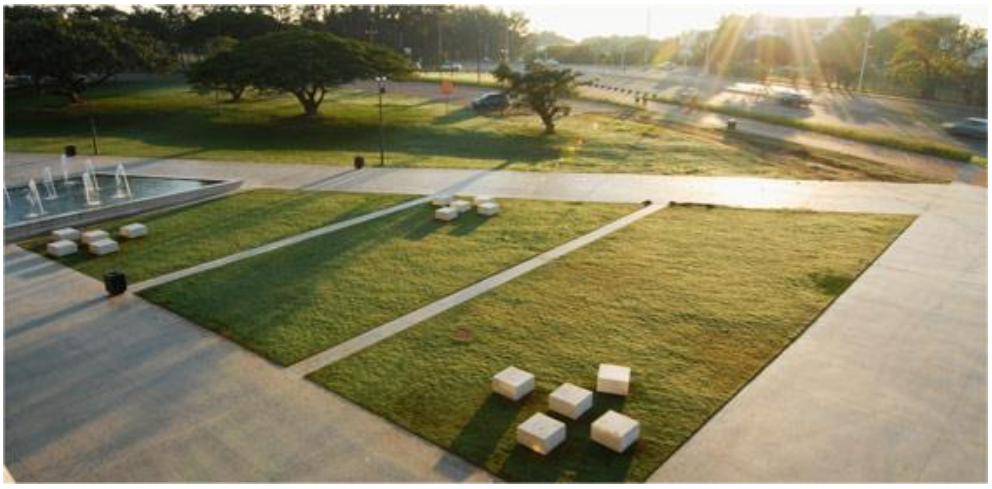

Figure 3.2.2 iv: The Moses Mabhida soft and hard surfaces landscape design of open spaces. (Source: www.worldlandscapearchitect.com)

3.2.3 Safe Design Principle

PPS (2015) speaks of generating streets that are quality places which attract people. If spaces are planned for people, instead of traffic or physical environment, then it shall be a place for people, as stated by PPS (2015) One of the vital public spaces for communities is the street, this is relevant because Umlazi is a place of community seeing as though it is primarily a residential area. The streets within communities therefore strengthen the connection between people and place.

The analysis of the actions and lifestyles within the physical environment is for the relationship between built form and its users through culture. The research study envisions a safe street design for the users of the proposed building therefore the safe design principle of placemaking concept is relevant. As mentioned in the next section under Relationship between Built Form and its users through Culture; The Physical Environment, **s**treet pattern, as part of the physical environment considers making neighbourhoods safer because people spend a considerable amount of time on the street traveling between destinations by walking or by public transport. Streets that inspire pedestrian activity at various times have natural surveillance. Along with making the streets safer is a need to make streets more pedestrian-friendly by reducing high travel speeds.

Figure 3.2.3 i: The pedestrian-friendly design of Isaiah Ntshangase Road. (Source: www.worldlandscapearchitect)

Figure 3.2.3i above shows the redesign of Isaiah Ntshangase Road provides for pedestrian priority and linkage with prominent public transport systems including Moses Mabhida Station. Isaiah Ntshangase Road adjacent to the Imbizo Place was redefined from the former four-lane road with standard city pavements to a pedestrian-prioritized shared space with two-lane roads and pavements from 2.5m to provide a safe street with density of trees and lighting. A lesson the research study can use for streetscape design. A pedestrian-friendly road for widened pavement, seating, a foliage buffer from the road, and bollards is necessary. (Holmes, 2007) The traffic calming techniques for pedestrian-priority design are also captured in the re-design of Walnut Road, Durban Central, as shown in figure 3.2.3 ii below

Figure 3.2.3 ii: The change in road texture to lower high speeds of traffic. (Source: www kznpr.co.za)

Public space is used as a transitional space from destination to destination. Many people rely on public transport thus there is a constant human activity, and they use the street as a transitional space. The research learns from the

precedents above that traffic calming can make the road safer for pedestrians to walk and elements enhancing the street experience of pedestrians as they walk such as a safe, shaded, and well-lit street edge design is necessary.

3.2.4 Interactive and Social Design Principle

Special and successful streets encapsulate meticulous attention to detail in the design of the pavements, buildings and greenery. (PPS, 2015) The analysis of the actions and lifestyles within the physical environment is for the relationship between built form and its users through culture. The research study envisions interactive and social design for the green spaces within the urban fabric, therefore the interactive and social principle of placemaking concept is relevant. As mentioned in the next section under Relationship between Built Form and its users through Culture; The Physical Environment, green spaces have their nature dependant on its distinctive characteristics which reflects the identities of its users, making it successful and giving it ownership to its users; bringing a sense of belonging. A temporary structure erected as a Micro Library in Durban Central, as shown in the figure 3.2.4i below, functions as a mini library encouraging passing pedestrians to read, research or look for information. (Walker, 2008)

Figure 3.2.4 i: The micro-library in public space. (Source: www misterwalker net)

Vilakazi Street has a vibrant offering of public art, such as the eight concrete hands signify Vilakazi in sign language. Vilakazi Street is known as the hometown of late former president Nelson Mandela and Archbishop Emeritus Desmond Tutu. The street is also iconic for Nelson Mandela's house which is now converted into Mandela House Museum. The urban area grew when marginalized people were forcibly relocated there, which resembles the rich history of the urban area in which the research study is based. (Ramela, 2018) Figure 3.2.4 ii of public art and outdoor theatre seating in Vilakazi Street, Soweto, Johannesburg is shown below.

Figure 3.2.4 ii: The public art and outdoor theatre seating. (Source: www.joburg.co.za)

The research study considers public art in the green spaces of the urban fabric as a means of sparking interaction because the meaning of public art is intriguing to people and starts conversations. Public art that has meaning is fundamental to the place in which it is located. Where public art is placed is purposefully done and contributes to its meaning, and thus creates a place in the space it is placed. To create a street as a place, one must understand the physical environment and social environment.

Understanding the urban fabric is vital because buildings are spaces which is what creates a street. The research learns from the precedent that there is youth in public space for a considerable amount of time need activities and amenities that can create a good experience of public space. For this, a lively public space is envisioned.

3.3 DECOLONISING EDUCATION IN AFRICA

3.3.1 Decolonization Methodologies

Zavala (2016) determined methods and strategies for de-colonial education. Colonialism as a Western system characterizes Modernity which is how we can situate de-colonial methodologies in a broader geographical historical context. This understanding of the past is important for gaining perspective on the ways of life and how life came to be as it is today. De-colonial education can then be understood because it is defined by particular colonialisms that need to be done away with, as the prefix ‘de’ in the word de-colonial suggests. (Zavala, 2016:1)

Zavala (2016) speaks of a de-colonial venture which is characterized by three strategies. These are three methodologies: a system of procedure for accomplishing something. The first, counter-storytelling which involves the practices of identifying cultural traits derived practices and retaining these in memory to keep alive the culture. Second, healing which involves two major practices being communal or community healing and spiritual healing. The third is reclaiming which encompasses practices that mark spaces with identities derived from cultural traits. These strategies are interlocking; their relationship with each other is dynamic and developmental. The process of

counter storytelling in de-colonial education is itself tied to the process of healing, which is also a part of the process of reclaiming. (Zavala, 2016:2)

Counter-storytelling offers a form of expression to enable people to understand their past which colonialism created by limiting people from Africanism through its structural arrangements. Counter-storytelling is associated with retaining the memory of forms within colonialism. This retaining memory is essential to regaining dialects, spaces, and distinctiveness. Zavala, 2016:3)

Healing, another de-colonial methodology is linked to counter-storytelling because the practice of retaining memory. Community healing and spiritual healing responds to how colonialism disconnects people from their culture. Healing involves a recovery of historical trauma. People are seeking alternative learning methods and processes as sources of recovery from past colonization learning and future development. (Zavala, 2016:4)

Reclaiming de-colonial methodology involves a rediscovery of practices and relation to place. Reclaiming cultural identities is important to this strategy thus rethinking learning processes inherited from western learning processes is key. This strategy is tied to people's identities and is an engagement of the process of reclaiming who they are. (Zavala, 2016:5)

The research study acknowledges these methodologies and considers introducing them into the architectural design of learning spaces. Today, education is centred on STEM subjects to produce learning that is geared towards technology through globalization. Schools in peri-urban contexts prioritize STEM subjects as compulsory through the journey of higher education, which is a step that the education system has taken for the better. It however also needs to consider another aspect of education which is connecting learning with the real world. Counter-storytelling, healing, and reclaiming de-colonial methodologies introduce a grounded learning strategy to modern approaches to learning that connects to African culture.

Moses Mabhida square with interactive water features is shown in figure 3.3.1 below. This is a large flexible area with the potential for a flea market. Mabhida Square, a place for recreation with practice fields for sport and a Heroes Walk within the Park.

The Moses Mabhida Square is defined on the western edge by a new restaurant building and interactive water feature and on the eastern edge by a low curved seating wall known as the "Workers' Wall "which memorializes the individuals who were involved in the construction of the stadium and the precinct.

Following decolonial methodologies, counter-storytelling gives a deliberate attempt to develop a form of expression through identifying cultural traits that are often framed as a counter-storytelling that challenges the master storylines of Modernity, Eurocentrism, and coloniality. Counter-storytelling is associated with retaining the memory of particular forms within coloniality.

Heroes Walk is an axis that commemorates great South Africans; showing Decolonial Methodologies strategy of reclaiming that involves a rediscovery and commemoration of who we are as a people, our practices, and relating this to place

Figure 3.3.1: The Moses Mabhida Square. (Source: www.durban.gov.za)

The research study learns from the precedent that reclaiming spaces and identities through retaining memory of past heroes by the heroes walk and the Nelson Mandela square is integral to the decolonizing strategy as a powerful vehicle for indigenous and colonized peoples to understand not just what they went through and witnessed but to root themselves in place and where they come from.

3.3.2 Existing Learning Spaces in De-colonial Contexts

As stated by the strategies concerning the design for public school infrastructure (Department of Basic Education, 2012), the Department of Basic Education identified imbalances concerning core elements of educational resources. Lack of educational resources results in insufficient educational facilities in school. (Department of Basic Education, 2012:3) Thus the Department of Basic Education attempted to guide access to sustainable learning environments. (Department of Basic Education, 2012:3) The guidelines are said to be safe and functional. (Department of Basic Education, 2012:4)

Be that as it may, the research study has concluded according to informants of interview schedule B that as much as Planning for Public School Infrastructure has been provided for by the government, the architectural planning lacks provision and maintenance of educational resources in response to socio-economic issues within the decolonial urban contexts that learners reside in. Where practitioners in existing learning environments in decolonial urban contexts identify issues with learners that impede their learning, which has been elaborated in the interview schedules, there is no support on how to deal with such, which is unfortunate.

The Department of Basic Education (2012) condemns lack of drinking water and ablution facilities; however, these instances are what the learners currently encounter in their learning environments. This is according to informants from interview schedule B. (Informant 1 and 2, 2019)

The implementation of psychological, educational support as well as better access to information through technological innovations, providing and enhancing infrastructures for the provision of information and educational public informative gatherings for the transfer of pertinent and relevant knowledge needs to be considered in the design of existing learning spaces in decolonial urban contexts. These are lacking and need to be taken into consideration concerning the architectural design of learning environments in decolonial urban contexts. The research study appeals to these as being crucial for transformative learning environments to be able to create innovative thinkers that can move the country forward.

It does not take a building for learning to occur in urban contexts like western culture has determined that learning should occur in a building classified as a school. African culture embraces all environments for an exchange of knowledge through social gatherings. In such environments, education with a communal influence is important from an African point of view. It involves sharing with and helping others, and through this, one is educated for the common good of the community. (Venter 2004:157)

With its construction and materiality, as shown in the figure below, the current architecture of Lanka Learning Centre is constructed from local materials. The colony influence architecturally has evolved into a culturally relevant architecture and the research study takes lessons from this. Through the precise modulation of generic design elements, the project aimed to showcase potential approaches for the architectural appearance to the urban context, the utility, and the handling of the adverse climatic conditions making it well situated within its location.

Figure 3.3.2 i: The Lanka Learning Centre (Source: www.archdaily.com)

The external walls of each structure connect to each other creating a round form that creates a protected courtyard as shown in figures 3.3.2 i, 3.3.2 ii, 3.3.2 iii and 3.3.2 iv below. (Basulto, 2017)

Figure 3.3.2 ii: The Lanka Learning Centre (Source: www.archdaily.com)

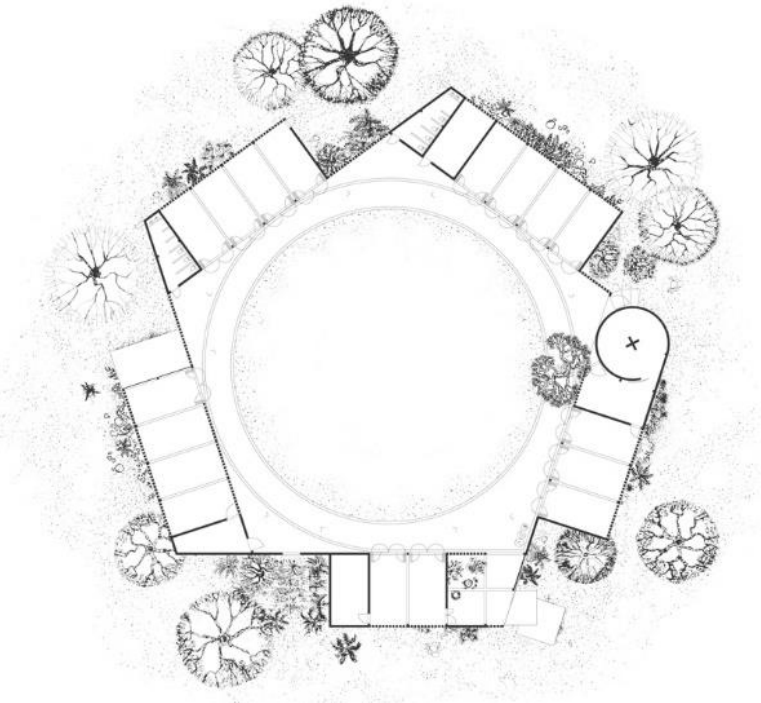

Figure 3.3.2 iii: The Lanka Learning Centre (Source: www.archdaily.com)

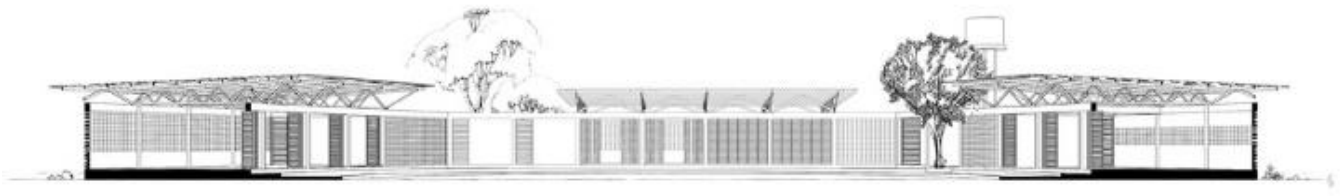

Figure 3.3.2 iv: The Lanka Learning Centre (Source: www.archdaily.com)

3.4 EXISTENTIAL THEORY

To achieve the connection to the built environment its relevance to culture and tradition, the study turns to existential theory because the built environment is in pursuit of a building that its users can relate to. Since isiZulu ethnic tribe is the culture of the people of the urban area, the isiZulu ethnic oral tradition spaces, isiZulu ethnic traditional homestead architecture, and the social organization of space are the cultural and traditional aspects that existential theory uses to connect the built environment to culture and tradition.

Mthethwa (2019) states existentialism is that which exists under circumstances. (Mthethwa, 2019:209) Mthethwa (2019) continues to state that with the perspective of African culture and tradition, the creation of built form is fixed by the African existence. (Mthethwa, 2019:209) A place is therefore informed by the perspective of African culture and tradition.

This psychological approach would cause the architect or urban designer to respond and consider the site analysis of a place from an African perspective while considering an existing colonial built environment, (Mthethwa, 2019) which is the case with the research study being based in an existing previously colonized built environment that the research study aims to raise awareness to reclaim its African culture and tradition within the built environment.

Mthethwa (2019:210) acknowledges that colonization has affected how built environments were developed in colonized territories. (Mthethwa, 2019) Colonization stripped Africa of its culture and tradition and the research study aims to revive African culture and tradition within the built environment of Umlazi.

3.4.1 Concept of Culture

3.4.1.1 The First Analytical Axis

Rapoport dismantles the concept of culture into two analytical axial components. The first analytical axis is composed of concrete social group expressions such as clans, religious institutions, family structures, gender roles, or status hierarchies. The first axis, therefore, links culture to build form by concretizing, for instance, family structures and cosmological representations into architectural expressions. (Mthethwa, 2001: 25)

3.4.1.2 The Second Analytical Axis

The second analytical axis is composed of components called ‘culture’, ‘world view’, ‘values’, ‘lifestyle’, and ‘activities. Michael (1989) defines ‘world-view’ as to how individuals see themselves concerning their world. ‘World-view’ also refers to emphasis placed by individuals on what they perceive and the choices they make. The research study acknowledges that the youth of Umlazi see themselves as bigger than the environment they have grown up in because they wish to be exposed to greater opportunities to improve their lives and their family’s lives. They perceive their environment as under-privileged and they choose to be more than what they know.

‘Values’ are ideas about what is important or what is good and bad in society. Values, which are controlled by group preferences, tastes, and choices, belong to a particular culture. Values are fundamental beliefs that guide or motivate attitudes or actions. (Mintz, 2018) The research study acknowledges that the youth of Umlazi, therefore, believe in improving their lives and their family’s lives and being exposed to greater opportunities which means their choices involve being motivated towards their goals, acting that involve executing plans and maintaining work ethic and discipline towards their success. All these result in a culture of learning and, fundamentally, the architecture expresses it.

‘Lifestyles’ refer to interactions between environment and behaviour. The research study acknowledges that the youth of Umlazi are exposed to an urban fabric that is not structurally arranged with a random arrangement of informal settlements which creates freedom of movement as well as walkability being prominent to their daily experiences. Destinations are walking distance and destinations that are far to walk, they commute to destinations by public transport. This makes a lifestyle that is independent and liberal.

‘Activities’ are directly linked to lifestyle. The research study acknowledges, because of the independent and liberal lifestyle, the youth of Umlazi play sports in the street on secondary and tertiary roads that branch off from primary roads and at sporting venues such as public swimming pools and soccer fields and stadiums. They linger in public space for the public all-access Wi-Fi connection. They mostly walk or travel by public transport between destinations. They participate in cultural activities; Zulu traditional dance and perform at traditional ceremonies.

Rapoport suggests that it may be possible to demonstrate that parts of the environment are in harmony with expressions of culture, given an understanding of the mechanisms that link them. The built environment of today has evolved from primitive architecture due to modernization. (Mthethwa, 2001) The architecture in Umlazi is rectangular shaped instead of circular-shaped in form, gable roofs are predominant instead of cone shape roofs, family clusters do not reflect in the architecture as everyone lives in one structure instead of multiple structures as in the homestead.

The family structure has shifted in the sense that the head of the household is not the only breadwinner anymore, the children enter school and surpass primary school education right through to tertiary education to contribute to the household monetarily instead of contributing by household responsibilities only. These differences are evidence showing how tradition has altered because of modernization creating a hybrid culture that is similar but different from that of the homestead and a hybrid culture that the youth of Umlazi identify with and relate to.

3.4.1.3 Relationship between Built Form and its users through Culture

Rapoport considers appropriate planning and design of the built environment to relate to culture and the culture-group, therefore it is necessary to relate a culture-group to its culture before planning and designing the built environment for that culture. (Mthethwa,2001:28) Social and cultural variables are critical in helping to define the nature of the relevant groups and to describe underlying structural elements of traditional environments and underlying behavioural patterns associated with these environments. (Mthethwa, 2001:28)

Rapoport considers the social environment and the physical environment to define culture groups as a relationship between built form and culture. The physical environment needs to be understood for its characteristics before it can be analysed. Umlazi has been referred to as a township, an apartheid term that represents oppression and congestion of ethnic people. Spatial apartheid planning and geographic haven not changed much, however; the study strives for a connotation of the area that is not oppressive as the apartheid regime implemented.

The study rather strives for a connotation that is liberal; Non oppressive and following democratic trends. While acknowledging the past as of historical significance, the study strives for a learning approach that is free-flowing and inclusive. The research study rather refers to Umlazi as an urban area instead. An urban area on the outskirts of the city that is developed with a density of houses, commercial buildings, roads, bridges and railways; and is within commuting distance from the city (Geographic, 1996)

The urban area is undergoing infrastructural development because the urban area is lacking infrastructure and essential services. (Municipality, 2011) It is predominant with informal settlements and remains rooted in isiZulu ethnic tradition. These different aspects of the urban area create a hybrid characteristic. This hybrid characteristic influences the culture of the youth. The hybrid characteristic includes the physical environment and the social environment. The physical environment will relate to the urban area features and the social environment will relate to the isiZulu ethnic tradition features

3.4.1.4 The physical environment characteristics at different scales

The analysis of the actions and lifestyles within the physical environments begins at the macro scale. The macro-scale includes urban fabric comprising street patterns, residential density, modes of transportation, pedestrian paths, green spaces, and destination buildings. The micro-scale includes context comprising natural features to the physical environment, modes of transportation, pedestrian paths, surrounding buildings, edges, movement, and accessibility.

3.4.1.4.1 The Macro Scale; Urban Fabric

Street Pattern, as mentioned above in Placemaking Concept, Safe Design Principle, streets are used for youth who play soccer, who linger for access to public Wi-Fi and who travel by walking and public transport between destinations.

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Figure 3.4.4.1 i: The street activities in the urban area of Umlazi. (Author)

Green Spaces, as mentioned above in Placemaking Concept, Interactive and Social Design Principle, are used for cultural ceremonies related to youth who are coming of age, and social events for youth who participate in sport, sports fan parks, and sports practices. The green spaces of the peri-urban area have open spaces for cultural ceremonies and sports practices.

Figure 3.4.4.1 ii: The activities in open space in the urban area of Umlazi. (Author)

Destination Buildings, as mentioned above in Placemaking Concept, Great Activities, and Destinations Design Principle, are numerous for the youth which include primary and high schools as well as tertiary institutions.

3.4.1.4.2 The Micro Scale; The Neighbourhood

The walkable neighbourhood as mentioned above in Placemaking Concept, Accessible Design Principle, is the core of the social unit of the youth. Modernization and isiZulu ethnic tradition frame their hybridity culture and gives them an advanced and innovative perspective to life. Each of the layers to the physical environment has a relationship with the youth and defines their relationship between built form and culture.

Some lifestyle patterns have been altered by modernization that has affected the youth thus forming the culture that they identify with. Rapoport argues that this aspect of tradition and its adoption at different eras and in different places makes it possible to identify ties between some aspects of tradition and built environments. (Mthethwa, 2001: 27)

3.4.1.4.3 The Social Environment Characteristic

The social environment concerning the lifestyle of the youth and their role in isiZulu ethnic tribe, Umlazi has a hybrid characteristic, that being it is an urban area rooted in isiZulu ethnic tradition as mentioned above, under physical environment characteristic and this influences the culture of the youth through actions, attitudes, and beliefs. They are exposed to different lifestyles and different aspects of the physical environment which causes a liberated, open-minded, unconventional, and freethinking social culture. This means the physical environment and learning environments need to be designed towards creativity and innovation.

This generates their role to be innovative thinkers to transform their community for the better. Therefore, learning built environments infused with advancement and innovation is key. Below is a figure showing the design features for a learning environment to be designed for liberated, open-minded, unconventional, and freethinking social culture. Constructivism Learning Approach, isiZulu Ethnic Oral Tradition Spaces, and isiZulu Ethnic Traditional Homestead Architecture are the social environment characteristics that will connect the youth to the built environment.

3.4.2 Concept of Tradition Through Isizulu Ethnic Tribe

Rapoport defines tradition as the product of transmission and having cultural origins involving a common group of people. (Mthethwa, 2001:26) Tradition is identified with conservatism in the sense of accepting the past thus ensuring continuity. (Mthethwa, 2001:27) People transfer cultural significance by translating patterns by which a group of people relate to, which is what formulates culture, into built form. (Mthethwa, 2001:27)

Rapoport's concept of traditional built environments includes those that are typically described as primitive or vernacular and shows patterns that formulate a culture that people can relate to, for instance, the traditional settlements South of Kwa-Zulu Natal in an area called eMbo which is also later referenced in the following section about culture. These settlements have maintained tradition in the built form which has been transferred from

generation to generation ensuring continuity and the repetitive round shape habitual spaces sheltered by cone shape roof architecture show patterns that the people of the area relate to and have adopted as their culture.

Figure 3.4.2: The primitive traditional built environments of Kwa-Zulu Natal. (Source: Mhlaba, 2009; 51)

3.4.2.1 Social Organization of Space in IsiZulu ethnic tribe

The research study acknowledges that every person has an original identity tracing back to the origins of the people that lived before them. Hence the importance of identity in family is mostly emphasized between encounters amongst people of the isiZulu ethnic tribe, which is traced to homesteads. In isiZulu ethnic tribe the homesteads are called '*emakhaya*', which means the original home or area which the family originated from. This gives people a mapping of where they come and is usually a conversation starter amongst people of the isiZulu ethnic tribe because they always want to know where a person's family lineage originates from before engaging further in conversation or socializing with one another.

Therefore, since the isiZulu ethnic tribe associate's identity to the place of family origin, it is appropriate to reference the homesteads through architecture. The typography of the homesteads is generally gently sloped and steeply sloped with some flat areas; thus, buildings are mostly situated on the flat areas of the landscapes. Other buildings are situated on the slopes and thus require earthworks to create platforms for buildings. Thick shrubs and grasslands also characterize the area. The typography of Umlazi reflects the same characteristics which mean when in Umlazi, the homesteads are reminiscent.

Therefore, the homestead architecture is an appropriate reference to the proposed public learning infrastructure because the research study proposes a learning environment that connects to the isiZulu ethnic tribe tradition instead

of learning environments from Western culture that are characterized by classrooms. It does away with the walls and learning within an enclosure and opens the environment to learning. This brings the atmosphere of learning as if it were in the homesteads, to Umlazi.

Planning of functional spaces is concerning tradition and social organization of space as shown in figure 3.4.2.1 below. The buildings in the homesteads have a layout of significance to tradition. The transition into the homestead is through *'isango'* which means a gate, it is the point of entry into the homestead. (Mhlaba, 2009:55) From here, there is an open space called '*igceke*' which is the welcoming outdoor space where people transition into the building. Members of the family have their huts which can be regarded as rooms, however, because it is homestead architecture, these are separate buildings for each family member that are clustered together and entered from the welcoming outdoor space. properly positioned to allow for radial expansion. (Mhlaba, 2009:55)

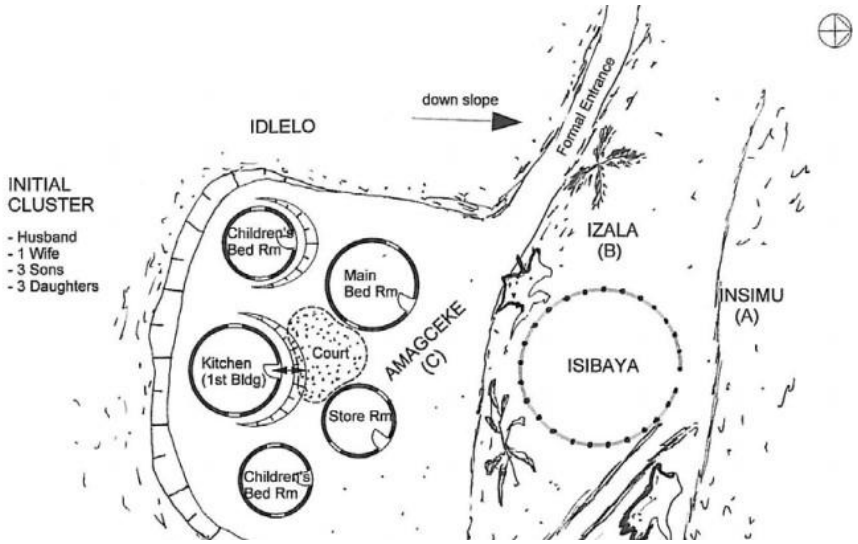


Figure 3.4.2.1: The planning of functional spaces is concerning the tradition of Kwa-Zulu Natal. (Source: Mhlaba, 2009; 51)

3.4.2.2 IsiZulu ethnic tribe traditional architectural expressions

IsiZulu ethnic tribe traditional settlements South of Kwa-Zulu Natal in an area called Embo are referenced in the study to demonstrate the relationship between culture and tradition and how tradition can influence architectural expressions to reflect culture.

Architectural expressions that reflect traditions are:

- Each cluster has a dedicated outdoor space, and each outdoor space of each cluster forms part of a bigger shared outdoor space
- The family clusters radially expand from the original cluster that remains the main central communal building for the homestead, also used as the main hut. It was dedicated and kept as a sacred place where ancestral rituals are performed.
- The homestead sits on a wide, open, gently sloping site.

- The homestead layout is organic.

The IsiZulu ethnic tribe traditional settlements are an architectural expression of family structure hierarchy through family clusters which encourages a culture of interdependent individuality of household members and territorial zoning of spaces for certain activities. The architectural expression of the traditional settlements of the isiZulu ethnic tribe will be referenced in the proposed building because the youth of Umlazi identify with the isiZulu ethnic tribe as their ancestral lineage. This is pertinent to attract youth and have the youth relate to the built environment towards encouraging a culture of learning.

3.4.3 Embrace Culture through Tradition

A way of life typical of a group, a system of schemata transmitted symbolically. In any environment-behaviour framework, culture plays an important role because many of the critical human factors, which affect the fit between people and their environment are culture-based. Culture is a product of cumulative and commonly shared experiences of a group of people that is transmitted downwards through the generations. (Mthethwa,2001:23) A set of commonly shared and learned ways of life, consisting of the totality of tools, techniques, social, institutions, attitudes, behaviour patterns, beliefs, and values on that culture group. (Mthethwa,2001:23)

Symbolism is a strong and useful aspect of any definition of culture in the context of architecture because it points to the understanding and interpreting of built environments. (Mthethwa,2001:23) Definition of culture as a symbolic system has denoted culture as traditionally passed on meanings exemplified in symbols, a system of inherited conceptions expressed in symbolic forms through which human beings connect in attitudes towards life. (Mthethwa, 2001:24)

It is entirely possible to admire traditional objects of cultural significance while simultaneously rejecting the tradition that produced them or to carry out traditional practices in non-traditional environmental settings (lifestyle or social arrangements). (Mthethwa, 2001:27) Thus various parts of a tradition may change differentially; some elements of a tradition may remain virtually unchanged and may be comfortably combined with new practices. (Mthethwa, 2001:27) Rapoport's perspective on changing tradition applies in the research study.

Umlazi identifies with a hybrid culture; people from the rural areas migrate to areas such as this in search for better opportunities being education and employment causing urbanization of the area to provide the amenities that they are in search for which are not available in the rural areas such as schools with better resources, hospitals, and medical clinics, public transport facilities, roads, etc. Modernization which has encouraged urbanization has caused a shift in tradition in the area with regards to family structures and traditional settlements. This has caused a hybrid culture of tradition infused with modernization. Thus, the hybrid culture as identified by Rapoport's first and second analytical axis definitions of culture lead to Rapoport's set of issues to define culture groups as a relationship between built form and culture.

3.4.3.1 isiZulu Ethnic Oral Tradition Spaces for Learning

The research study acknowledges that isiZulu Ethnic Oral Tradition Spaces are used to teach children and adults about important core principles of their culture, usually outdoor spaces with shelter such as shade from the canopy of a tree or the huts themselves. This ethnic tradition space relates to the design features for a learning environment to be designed for liberated, open-minded, unconventional, and freethinking social culture. It is the oral tradition space with the culture principles that is the isiZulu ethnic traditional element that will be referenced for the youth to identify with the built environment and the learning environment.

The role of the youth in the isiZulu ethnic oral tradition space is to learn culture core principles of isiZulu ethnic tribe and pass them to the next generation as it has been passed down to them. Hence his is a relevant reference for the envisioned constructivism learning approach as mentioned by Wolff (2003), because it is interactive, social and controlled by the youth because they can be as inquisitive as they would like for better understanding with no oppressions of systems related to learning like in behaviourist learning approach.

The characteristics of the isiZulu ethnic oral tradition space will show constructivism learning as mentioned by Wolff (2003), the transformed learning approach the study explores, which is appropriate for learning environments infused with liberated, open-minded, unconventional and freethinking social culture. It shows how learning does not necessarily have to have a building; it can also happen in open space, as seen in the figure 3.4.3.1 below.

Figure 3.4.3.1: The oral tradition. (Source: www.digicoll.library.wisc.edu)

Mehta (2016) sates oral traditions are messages that are transmitted orally from one generation to another. The messages may be passed down through speech or song and may take the form of folktales and fables, epic histories and narrations, proverbs or sayings, and songs. Oral Traditions make it possible for a society to pass knowledge across generations without writing. They help people make sense of the world and are used to teach children and adults about important core principles of their culture, which are continuity, order, and respect. (Mehta, 2016)

Learning in such an area has potential to happen anywhere because social gathering spaces and a place of exchange are not confined to certain environments but can happen anywhere; at roadsides, at corner streets, streets leading to main roads, bus stops, and pedestrian congestion areas while people are waiting for public transport.

Such an envisioned education needs a different view of learning that challenges existing learning processes. Learning can influence how people view themselves within their physical environment. In an area where people are frequently experiencing the physical environment; this presents an opportunity for interaction with others and an opportunity for influencing others. People creating social gathering spaces within the physical environment contribute to the identity of a communal culture. As stated by Mehta (2016), oral traditions make it possible for a society to pass knowledge across generations without writing. They help people make sense of the world and are
used to teach children and adults about important core principles of their culture, which are continuity, order, and respect. (Mehta, 2016)

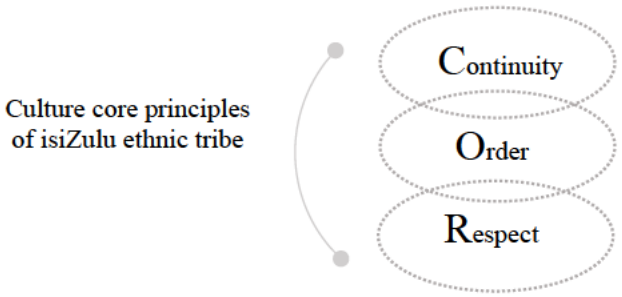


Figure 3.4.3.1 ii: The diagram of culture core principles. (Author)

1. Continuity reflects messages that are passed on from through speech through folktales, proverbs, etc. which architecturally can be translated by circular form due to the shape symbolizing continuity. Refer to the figure 3.4.3.1 iii below.

Figure 3.4.3.1 iii: The circle form for continuity culture core principle. (Source: Ching, 1943:38)

2. Order. Architecturally reflects ordering principle by an axis that will be expressed radially as gateways that open outward towards views beyond

Figure 3.4.3.1iv: The axis ordering principle culture core principle. (Source: Ching, 1943:38)

3. Respect. Architecturally the forms of the building complement each other, and spatial relationships speak to one another and relate to one another, hence why spaces overlap each other and create a common space. Ching (1943) speaks of spatial relationships principle where original spaces are interlocking to develop two original spaces connected by one common space. Refer to figure 3.4.3.1 v below.

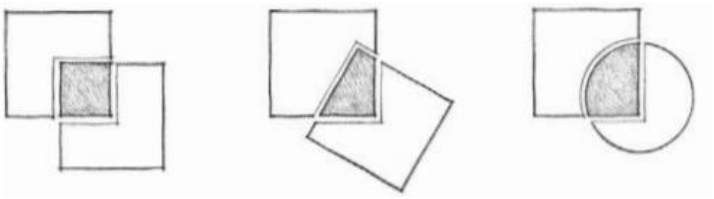


Figure 3.4.3.1 v: The interlocking spaces' spatial relationship principle for respect culture core principle. (Source: Ching,1943:188)

3.4.4 isiZulu Ethnic Traditional Homestead Architecture

isiZulu ethnic traditional homestead architecture is referenced for youth to identify with the built environment in designing the learning environment. The youth do not proceed further than the primary school level due to lack of affordability, lack of awareness, and orientation to education. (Mhlaba, 2009; 52) Therefore youth grow up with gender roles to contribute towards taking care of the household. Mhlaba (2009) states sons and daughters grow up being placed in their freestanding huts properly positioned to allow for radial expansion. (Mhlaba, 2009; 55)

3.4.4.1 Arrangement of spaces

The freestanding huts positioned radially from the initial cluster of huts which hold the most significant of the huts around them because they were the first to be built. The spaces radially expand from the initial cluster of huts. (Mhlaba, 2009) They form a big cluster of the randomly arranged hut, as shown in figure 3.4.4.1 below and this is reminiscent of the informal settlements of the urban fabric of the urban area of Umlazi, which also has a random arrangement of spaces. This will influence the design of the public learning infrastructure by a liberal experience of outdoor space with a random arrangement of habitable space. This will give a traditional influence to learning built environment that the youth will be able to identify with.

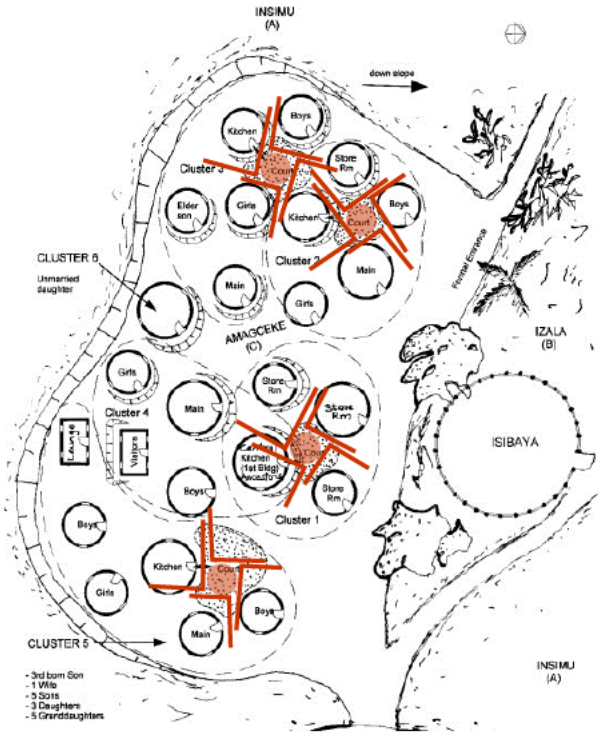


Figure 3.4.4.1: The radial organization of isiZulu traditional settlements (Source: Mhlaba, 2009:59)

3.4.4.2 Organization of space

A radial organization of space is used in the isiZulu traditional homestead architecture, as shown in the figure 3.4.4.2 below.

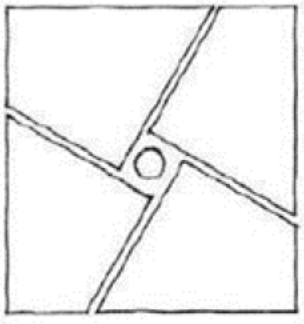


Figure 3.4.4.2: The radial organization of space. Source: (Ching, 1943:38)

3.4.4.3 Shape of space

The research study acknowledges the urban fabric of the urban area of Umlazi has square geometric forms in a cluster as shown in figure 3.4.4.3i below. These two forms of space in comparison relate due to the random arrangement of spaces and are as they are because of the availability of local material

Figure 3.4.4.3 i: The urban fabric of Umlazi showing the random arrangement of spaces. (Author)

To relate the proposed building to the urban fabric of the urban area of Umlazi the research study uses square geometric forms; that is in a cluster, in a random arrangement and that show hierarchy, similar as shown in the figure 3.4.4.3 ii below to relate to the isiZulu traditional homestead architecture.

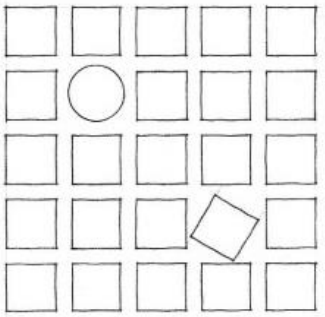


Figure 3.4.4.3 ii: The hierarchy of space by shape and by size. (Ching,1943:359)

3.4.4.4 Form of space

The form of space of isiZulu traditional architecture located in the homelands is shown in figure 3.4.4.4i below and is considered towards the design of the proposed architecture of the research study. There is the type below in figure 3.4.4.4i which has a conical shape on top of a cylindrical shape and the type below in figure 3.4.4.4 ii which has a half-sphere shape.

Figure 3.4.4.4 i: The hierarchy of space by shape and by size. (Source: www.midlandsamble.co.za)

Figure 3.4.4.4 ii: The hierarchy of space by shape and by size. (Author)

The form of space of the architecture in the area of study are geometric shapes. Below is figure 3.4.4.4 iii of the residential houses. They make up most of the building area of the area of study. One of the few libraries are also a geometric shape as seen below in figure 3.4.4.4 iv and figure 3.4.4.4 v. Seeing as though this is the case, the form of the proposed architecture will have a hierarchy of space by shape and size design to symbolize isiZulu traditional homestead architecture that is more relatable to its users.

Figure 3.4.4.4 iii: The hierarchy of space by shape and by size. (Source: www.flickriver.com)

Figure 3.4.4.4 iv: The hierarchy of space by shape and by size. (Author)

Figure 3.4.4.4 v: The hierarchy of space by shape and by size. (Author

The arrangement of spaces and forms of space principles mentioned above are reminiscent of the precedent below. The Lycée Schorge Secondary School is in Burkina Faso and provides a source of inspiration by displaying locally produced building materials in an innovative and modern way. (Kéré, 2016) The design of the school consists of a radial layout as shown in figure 3.4.4.4 vi above that provides classrooms, administration rooms, and a clinic, shown in the figure above. (Kéré, 2016). Its wind towers and roof overhangs lower the high temperature of the inside as shown in figure 3.4.4.4 vii above. (Kéré, 2016)

The radial layout creates a central courtyard shown in figure 3.4.4.4 viii above which creates privacy from the main public domain. An amphitheatre-like centre of the courtyard accommodates informal gatherings, meetings, and festivities for the school and community. (Kéré, 2016)

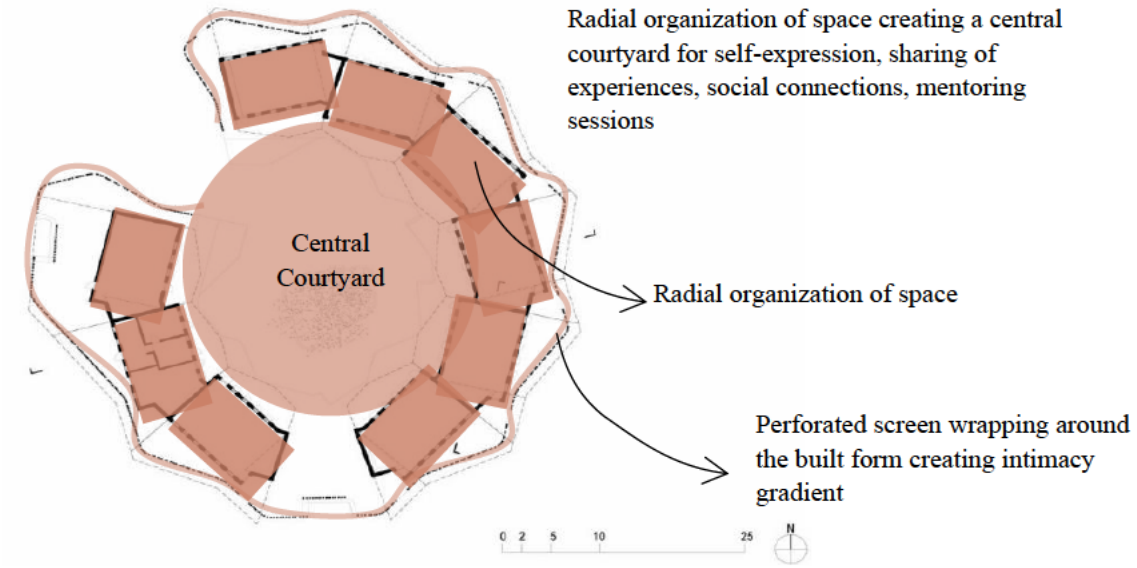


Figure 3.4.4.4 vi: The ground floor plan arrangement of spaces and form of spaces. (Source: www.kere-architecture.com

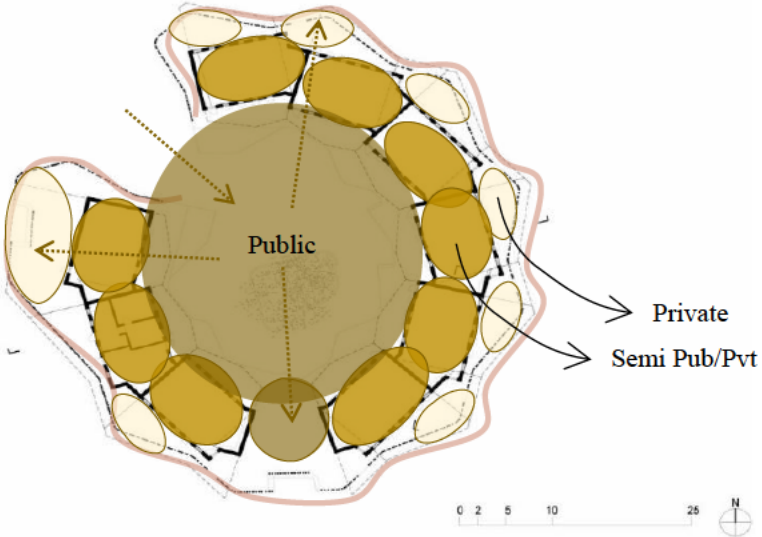


Figure 3.4.4.4 vii: The ground floor plan arrangement of spaces and form of spaces. (Source: www kere-architecture.com)

Figure 3.4.4.4 vii: The wind-catching towers and overhanging roofs (Source: www kere-architecture.com)

Figure 3.4.4.4 ix: The wooden screens. (Source: www kere-architecture.com)

Timber screens that wrap around the radial classrooms can be seen in the rendered figure 3.4.4.4 ix above. It is a shading device for the interior spaces.

3.4.4.5 Hierarchy of space

The design concept symbolizes a nautilus curve as shown in figure 3.4.4.5i above and is resembled in figure 3.4.4.5 ii of the conceptual floorplan below. Lohmann (1999) mentions the opera house as the centre of the project with the residential, educational, and recreational amenities which were introduced in a spiral as the aspects of life for growth and perspective, which can also be seen in the floorplan below in figure 3.4.4.5i.

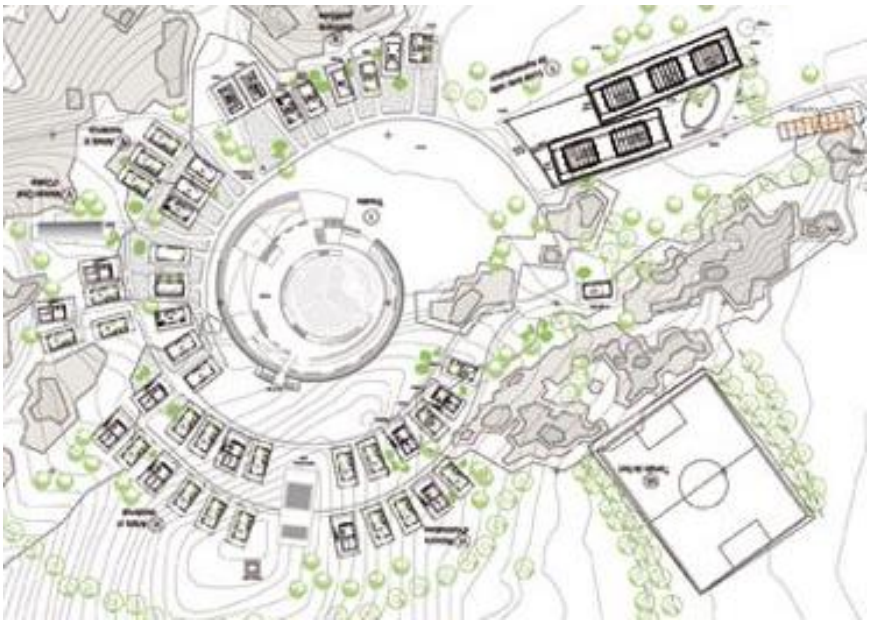
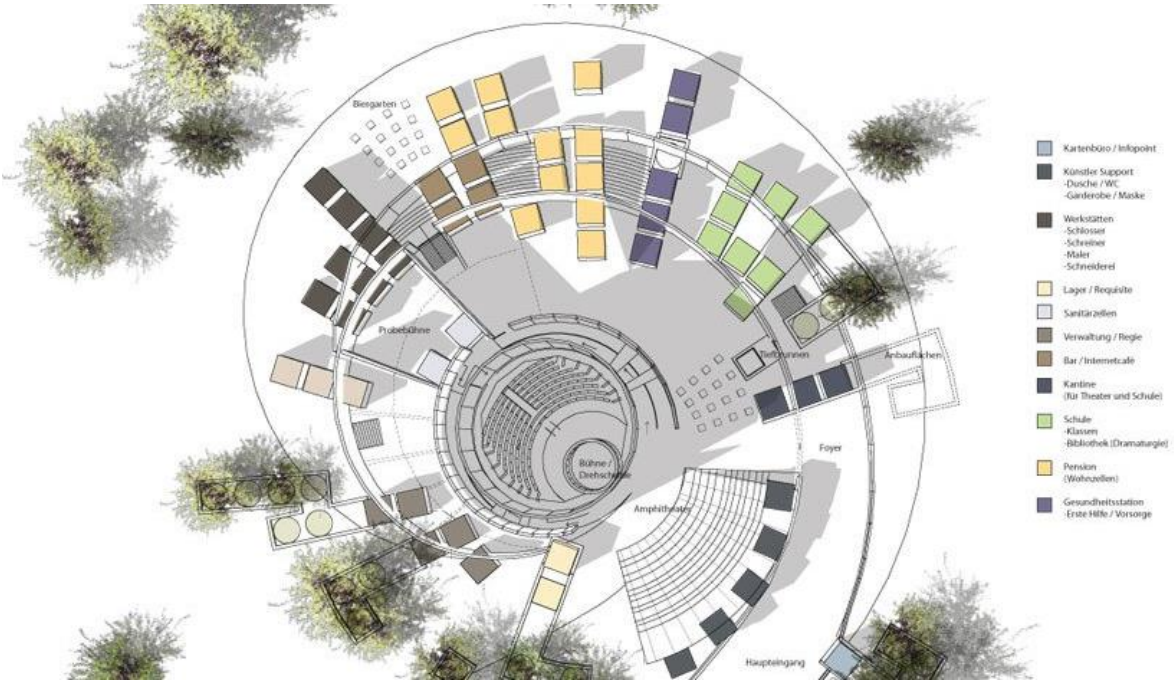


Figure 3.4.4.5 i: Opera Village floorplan. (Source: www.designboom.com)

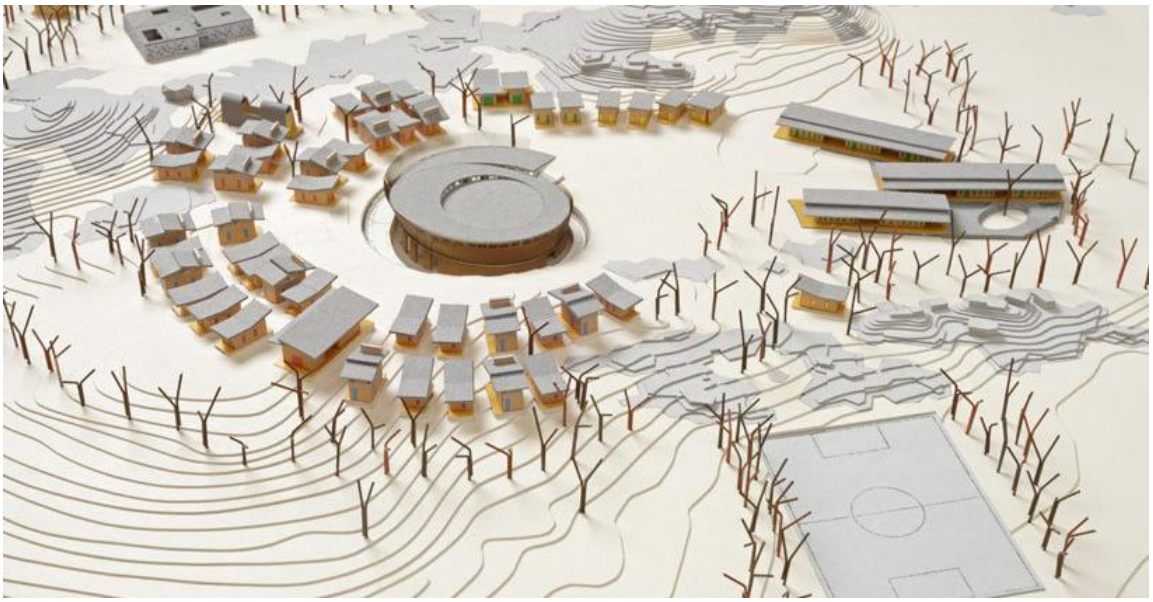
The radial organization of the Opera Village in Burkina Faso follows the shape of the nautilus curve. (Lohmann, 1999) According to Bramham (2018), the nautilus shell's spiral pattern shown in figure 3.4.4.5i and figure 3.4.4.5 ii be a symbol of psychological growth in that life presents us with repeated opportunities for growth. Along the line of growth, a different perspective, with new insights, increasing awareness, and consciousness is unveiled. Therefore, the nautilus curve symbolizes constant growth that brings a bigger perspective to each new stage of growth. (Bramham, 2018)



Figures 3.4.4.5 ii: The nautilus curve design of the Opera Village. (Source: www.designboom.com)

The festival hall and opera houses are art and media labs, workspaces, accommodation, a school and a central opera house. Figure 3.4.4.5 iv below shows the arrangement of each of these spaces on a model site. (Lohmann, 1999)

Figure 3.4.4.5 iv: Opera Village. (Sources: www.designboom.com)



This spatial organization brings a hierarchy of space within the village which is what the research study learns from the precedent. (Lohmann, 1999) Indigenous material and labour were used for the construction as shown in figure 3.4.4.5 v below. The festival hall takes on a circular form and is climatically responsive. (Lohmann, 1999) Passive cooling is achieved by the roof design as well as seen in figure 3.4.4.5 v below.

Figure 3.4.4.5 v: The section of the Opera Village. (Source: www.designboom.com)

Figures 3.4.4.5 vi: The concrete construction techniques for load-bearing beams and columns of the Opera Village. (Source: www kere-architecture.com)

Figures 3.4.4.5 vii: The concrete construction techniques for load-bearing beams and columns of the Opera Village. (Source: www kere-architecture.com)

The festival hall relates to Zavala (2016) who states counter-storytelling gives a deliberate attempt to develop a form of expression to enable colonized people to understand their present situation which colonialism created by limiting people from Africanism through its structural arrangements. Zavala (2016) goes on to state this retaining memory is integral to reclaiming languages, spaces, and identities. Healing entails a particular form of recovery from the physical, social, cultural psychological historical trauma experienced by colonized people. Reclaiming of cultural identities is important to this strategy thus rethinking learning processes inherited from western learning processes is key.

This strategy is tied to people's identities and is an engagement of the process of reclaiming who they are. This relates with the research study, seeing as though the research study aims to transform learning processes towards a liberated approach that integrates indigenous cultural references for the proposed building to be relatable to its users.

3.5 AFRICAN VIEWPOINT IN LEARNING

3.5.1 Construction of an African Viewpoint in Learning

Waghid (2014) acknowledges that Wiredu argues for a construction of an African viewpoint to learning which considers the understandings of traditional African philosophy with those from elsewhere to make African the education of Africa. If Wiredu is right, education in South Africa needs to integrate the philosophies of Africans. This will create a decolonized methodology to education as suggested by Zavala (2016). Thus, the basis of education is on being situated concerning the social contexts in which it is practiced. (Waghid, 2014;1) African viewpoint to learning is a noteworthy move towards making African the education of Africa alongside African culture.

Wiredu and Assie-Lumumba, as stated by Waghid (2014) argue for reclamation and construction of an African viewpoint to learning through integration with those from elsewhere. African viewpoint adopts communal attitude, whilst the European viewpoint to learning emphasizes an independent positioning towards life. Waghid (2014) defends for justification of an African viewpoint to learning that is linked to three ideals.

First, an African viewpoint to learning is intended at attain and cultivate good action. Second, an African viewpoint to learning should involve human beings engaging in communal practices whereby they live a good life through acting rationally in society with others – a matter of cultivating practical reasoning. Third, the author argues that the African viewpoint to learning encourages impartiality, and openness in people.

3.6 URBAN DESIGN THEORY

3.6.1 Lost Space

A space that has been left over or forgotten amongst the urban fabric are called lost spaces. They are voids within the urban fabric that disrupt the continuity of the urban fabric. These are places in need of rejuvenation for them to fully contribute to the surrounding area. (Harborth, 2010)

3.6.2 Figure Ground

Figure ground is described as land coverage of buildings as to the open ground. It expresses the relationship between solid and void to understand the urban fabric thus identifying patterns of the urban fabric. When the dialogue of buildings and open ground are consistent, the spatial network lean towards operating effectively. (Harborth, 2010) The landscape of Umlazi is filled with hills, which is why the road network is curvilinear. This makes the environment less legible. Due to the high dependency on public transport, pedestrian movement and landmarks in Umlazi, the residents have ‘cognitive maps’ of the area and can therefore make their way around the area. (Harborth, 2010)

The research study envisions the existing community amenities to be urban catalysts, with the site to be a generator. These community amenities are identified as points of interest to the site. The site is envisioned to act as a linkage between existing community amenities to enhance them. It encapsulates all existing community amenities of interest to the youth, which are education, sports, and culture/tradition. The site is envisioned as a generator for transformation towards self-expression through culture/tradition and arts. (Harborth, 2010)

3.6.3 Linkage

Urban sprawl in Umlazi is a result of affordable accommodation in comparison to the city. Opportunities to connect the surrounding nodes and buildings within the urban fabric are minimized because of the density of formal and informal settlements due to urban sprawl in Umlazi. Hence why existing community amenities and nodes are not within proximity to one another. The green spaces populated with informal settlements disconnects the urban fabric, disrupting the continuity of the urban fabric. These are regarded as lost space, voids in the urban fabric, which the research study intends to reconnect with its urban design intervention. (Harborth, 2010)

3.6 CONCLUSION

Transformative learning by decolonizing the underlying dynamics of the learning processes benefits learners as it exposes them to different methods of processing information and inspires their thinking as well as ignites motivation. The chapter presented a contemporary architecture linking with the envisioned architecture of the research study and proved by its unrestricted configuration of space that it brings a feeling of motivation for the learners to want to process information, especially with its use of colour that brightens up the environment, appeals to and attracts learners to a different view to learning. Along with the literature for Decolonizing Education in Africa and African Philosophy in Education showing the transition towards transformative learning environments.

CHAPTER FOUR

TRANSFORMATIVE LEARNING SPACES

4.1 INTRODUCTION

How African learning processes can transform learning spaces is by decolonizing education and integrating an African philosophy to education so that learning processes can be influenced by African culture which then transforms learning processes because it creates inspiring spaces to learn knowledge through experiencing alternative methods to learning. This chapter translates literature from chapters two and three architecturally with further literature on the Alternative School Movement, Hard, and Soft Learning Spaces as well as Rethinking Learning Space and Pedagogy in Africa. Illustrations in contemporary architectural examples will be presented for a more thorough investigation. Threshold Learning Concept, Experiential Learning, Problem Based and Environmental Psychology are the approaches for the execution of transformative learning spaces.

4.2 ALTERNATIVE SCHOOL MOVEMENT

Coates (1974) recognizes the political nature as a permanent characteristic of the public education system. Students are also conditioned into behaviour patterns and attitudes of an implicit rule system to be rewarded. Compulsory attendance, standardized curriculum, teaching methods, financing of school buildings and programs are all outcomes of political decisions. (Coates, G,1974: 83).

This realization leaves many to believe that meaningful change in the quality of the learning experience is impossible within constraints as above mentioned, of the existing formal educational system. In the last ten years, we have shown the bloom in a variety of alternative educational environments, a growing movement for community involvement, and the reorganization of bureaucratic educational systems. The response of architectural designers has been similar to the response of educators to open the decision-making process of the configuration of learning environments to the participants of these spaces as it is their lives that are directly affected by those decisions.

This is what the research study intends to do and from the responses, execute a transformative learning space that relates to its users. There is a growing pressure for the design process to become more publicly accountable and a growing number of young designers who are determined to change society rather than to simply manage it. (Coates, G,1974: 84).

The movement into the alternative school movement asserts that youth are naturally inquisitive and motivated to learn for the intrinsic rewards of understanding. Any authoritarian approaches to learning and socialization are viewed as destructive to healthy growth and development of full human potential. There is less emphasis on authority and more concern for the inquisitive nature of the youth in an environment rich in learning resources and supported by concerned guidance for understanding. There is a desire to overcome the existing institutional limitations of large classes; segregation by age, race, and place; and the exclusion of the community from the design, administrative, and pedagogical decision-making process. (Coates, G,1974: 87).

Architect and educator Charles Rusch observe the existing institutional and architectural form of the public schools as a barrier. His alternative to existing public schools is a mobile school that integrates both the political and

pedagogical approaches to reform. (Coates, G,1974: 88). Coates (1974) acknowledges that schools should at least permit learning which is more relevant to the present day. (Coates, G,1974: 118).

4.3 HARD AND SOFT LEARNING SPACES

Hard and soft learning spaces shows how environments affect people and their work, which is an advantage to learning spaces, as acknowledged by Coates (1974) It demonstrates the need to work in an intermediate zone. Learning environments need an equal measure of hard and soft learning spaces. Both hard and soft learning spaces have their advantages, and both should be part of everyone's experience. Flexibility where there is free access to materials and equipment with which the learners can interact with, as well as flexibility in learning spaces that are a cohesion of formal and informal spaces. This creates links with the world where the community is involved in the learning process of learners. (Coates, G,1974: 120).

Pedagogy interwoven spaces where learning spaces allow imagination and design to learning spaces to include structures that are not restricted to one purpose and spaces that are open to interpretation. Such educational spaces should be incomplete for learners to complete them with their interpretation. This makes space to be closely interwoven with pedagogy; it links a learner's identity with space. Moreover, there is a relationship between space and the retention of knowledge. An intermediate zone seems to be an inescapable part of hard-soft learning spaces. It would be a mistake to draw clear boundaries between hard, intermediate, and soft. Build hard-soft, manipulate the environment. (Coates, G,1974: 121).

The author defines education as a conscious use of resources to increase people's awareness of the relevant facts of their lives and to increase people's abilities to act in their true interests. Of major importance to most people are the laws that govern them, the ideologies which influence them, and the institutional products which determine the impact of their laws and ideologies upon them. Practical education, then, is increasing awareness for individuals and groups of their laws, ideologies, and institutions, and increasing the ability to shape these laws, ideologies, and institutions to their needs and interests.

Paulo Freire's philosophy and method are the authors' most satisfying approach to education in the modern world. (Coates, G,1974: 245). The author gives priority to the Freire approach because it is a force that acts against the existing education system by exposing and otherwise offsetting existing institutional forces for the domination of man.

Freire (1973) believes that the education system preserved oppression. Thus, it had to be transformed for a change for the oppressed. He envisions education as being prescriptive, referring to behaviourist pedagogy learning approach; and identifies the shortcomings saying that it merely transfers knowledge from teacher to learner. This being an individualistic nature to learning, Freire states that no one can learn alone because in life, people learn together from one another. Therefore, this should be the approach to education in Freire's perspective. Freire (1973) believes education should have societal relevance and encourage conscious action of individuals for the purposes of transforming the world. (Freire, P, 1973)

Freire's philosophy relates to the free school movement; however, its shortfall is that they exist from donations by individuals or nearby schools, which lessens any chances of them being built. They lack a method of independent financing. Only investors, funders or corporate social responsibility initiatives who have interest in education would result in such developments. There are few free schools aimed at the re-construction of society. In principle, free schools have the potential of reviving the community of learners. (Coates, G,1974: 249).

4.4 RETHINKING LEARNING SPACE AND PEDAGOGY IN AFRICA

Marunda-Piki's (2018) research assesses the extent to which elements of space affect the learning processes of learners. Space encompasses a range of aspects, including the physical setting and the psychological environment that is related through a social context. Most schools in Africa do not consider how the physical setting can have a psychological effect on humans related to learner engagement, ideas, and motivation. Regardless of the tremendous research taking place around the world into the effect of learning spaces on learners, very little has been done to explore the impact such environments may have on the performance of learners. There is a gap in understanding the configuration of space and how it can add value towards a person's culture or way of life. The research study believes a configuration of space can influence a persons' psychology.

Marunda-Piki (2018) notes that schools make architectural design choices based on functionality and cost-efficiency. Even though these are very important, these can be adhered to with spaces that reflect a variety of learning approaches showing transformative learning environments. A carefully configured space allows learners to feel a sense of belonging and connect to the pedagogy. Marunda-Piki (2018) recommends that space should contribute to the nurturing of learners' intelligence and develop the potential of all learners.

Learning spaces should look past housing learners and should move towards encouraging the empowerment of learners and teachers as they engage pedagogy. This movement is emerging in urban contexts, such as at Westville Girls' High School. The media centre encapsulates all the above mentioned with a library offering a variety of learning spaces such as large and small group study areas, computers area and a wide range of books collection areas as well as outdoor courtyards to soften up the built environment. Below are figures 4.4 i, ii, iii, iv, v, vi, vii, and viii showing the media centre of Westville Girls' High School located in Westville, Durban by Seedat Architects.

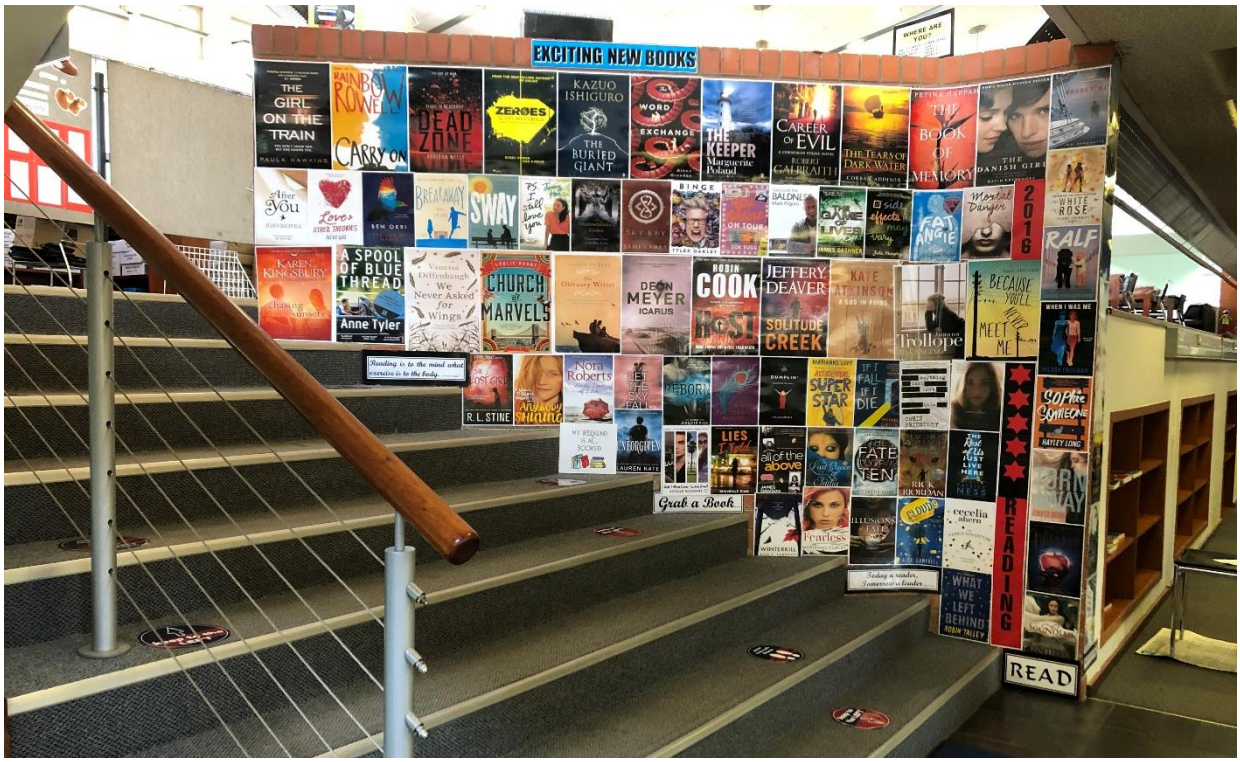


Figure 4.4i: Media Centre Entrance (Source: Author)

Figure 4.4ii: Media Centre Book Collection (Source: Author)

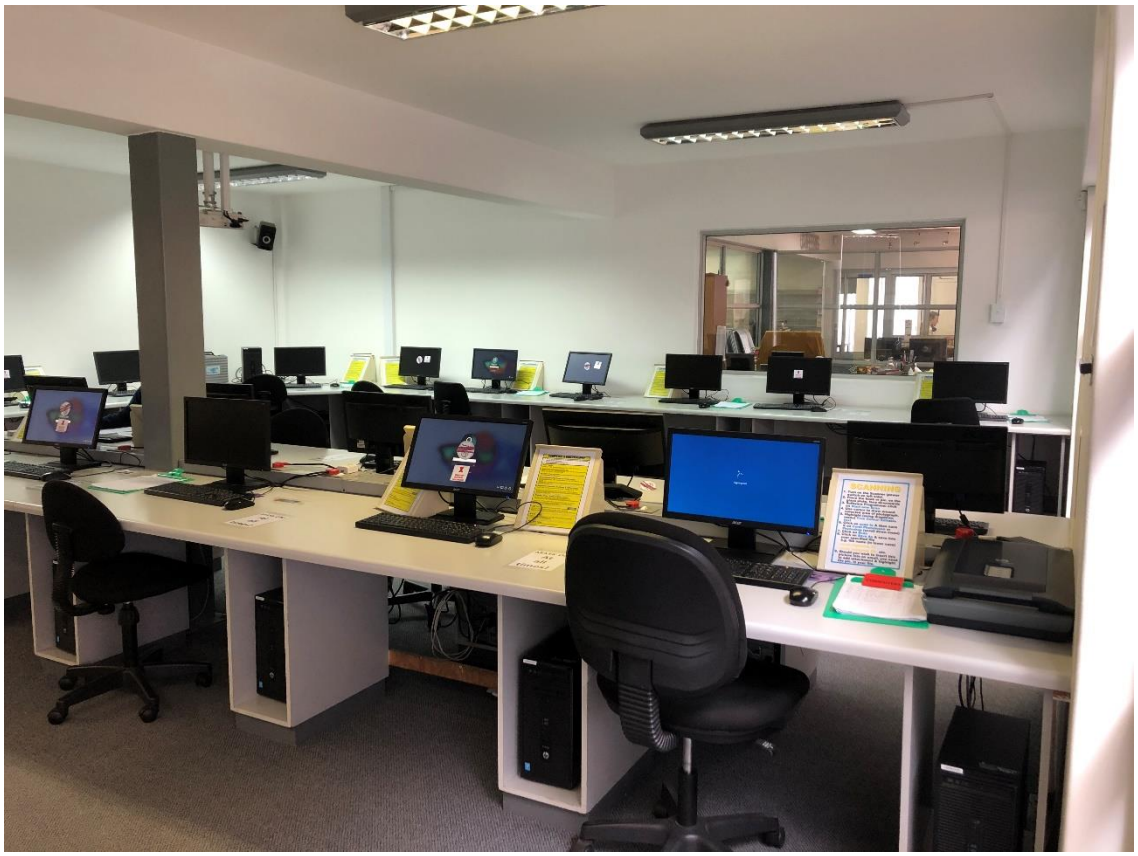


Figure 4.4iii: Media Centre Computers Area (Source: Author)

Figure 4.4iv: Media Centre Computers Area (Source: Author)

Figure 4.4v: Media Centre Small Group Study Area (Source: Author)

Figure 4.4vi: Media Centre Entrance (Source: Author)

Figure 4.4vii: Media Centre Courtyard (Source: Author)

Figure 4.4viii: Media Centre Courtyard (Source: Author)

Figure 4.4 v and vi above shows the meticulous architectural design in the fenestrations with how they admit natural lighting into the interior of the media centre to increase the learner's productivity in their learning. This shows how vital the physical environment is in the architectural design of learning spaces and the effect it has on their learning which the research study learns to incorporate into the proposed architectural design. It is also an appealing learning environment for the learners due to its dynamic architectural design creating an inspiring and stimulating space for learning.

4.5 LEARNING THEORIES THROUGH ARCHITECTURE

4.5.1 Experiential Learning Theory

Dewey's experiential learning theory influenced Schon (1983) who looked to reflect in practice as an alternative to the behaviourist learning approach. Schon (1983) differs from Dewey's argument that reflection is intrinsic to learning environments. He advocates for reflection in action. Schon (1983) places learning within the realm of the self in that learning which significantly influences behaviour is self-discovered because individual reflection is necessary to establish the resolution of problems. (Luckan,2016:64)

Schon focuses on the individual's reflection in action, however, Kolb defines experiential learning theory as four learning styles. Two dialectical modes which are grasping information or gathering information, known as concrete experience and abstract experience. The other two dialectical modes for transforming experience and processing information are reflective observation and active experimentation. Kolb, therefore, defines experiential learning theory as learning positioned according to preferred learning style. (Luckan, 2016:64) This is because the grasping, gathering, transforming, and processing of information differs from individual to individual. Individuals perceive and process information differently.

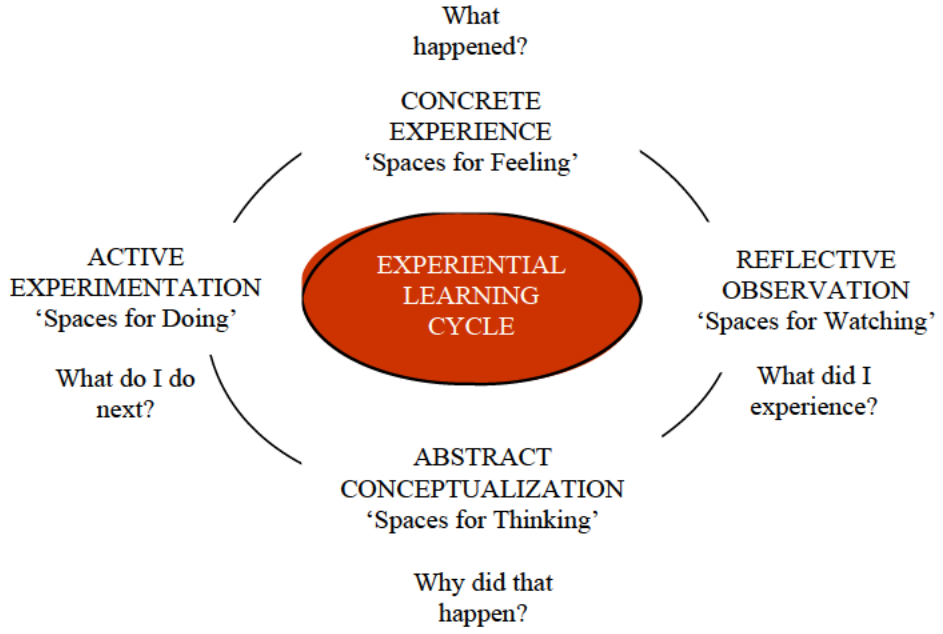


Figure 4.5.1: A summary diagram. (Author)

Experiential learning responds to restrictive learning spaces that are systematic and regulatory and addresses the barrier of connecting learning processes to the practical world and societal problems. The research study refers to the learning cycle of experiential learning in addressing the above stated as a liberated learning approach.

This feeds into learners' career guidance which eliminates confusion in career choices that learners face throughout their learning journey. The confusion barrier of all their questions or concerns diminishes the more they have access to information and people experienced in their areas of concern. An environment that can also encourage community members to share their knowledge. This creates an integrated learning approach that involves the community which can be acknowledged as communal learning.

Learners can discover and engage with mentors from within their community through the established platform of shared knowledge. Seeing as though they mostly live in informal settlements, they may not have workable environments for individual learning where they reside; the proposed building can provide such an environment. This needs to be given more attention and guidance because learning processes can be enhanced with a connection to the practical world and societal needs, lessening the confusion and partial understanding that learners face. Through this, 'A learning environment that is both introvert intuitive cognitive activity and extrovert social interaction' is achieved. (Luckan,2016:67)

4.5.2 Problem-Based Learning

Luckan (2016) asserts that understanding occurs when individuals have a personal interaction with the environment as stated by Savery and Duffy (1995) (Luckan,2016:59) Luckan (2016) also acknowledges there is a vital integration between environmental and social factors as well as individual internalization for effective learning to occur. (Luckan, 2016:59) Luckan (2016) further states in relating problems to context, it is argued that the stimulus for learning will inevitably be enhanced, as learners may relate learning to perceivable situated problems.

Learning is defined by a learner's own goals which are influenced by personal feelings and opinions. This challenges the learners thinking because learning is connected to attitudes and beliefs. Therefore, life experiences and culture within the broader social environment context become intrinsic in establishing understanding and creating meaning within a problem-based learning paradigm. (Luckan,2016:59) Problem-based learning is facilitated learning through problem-solving in groups. Learning is therefore self-directed and reflective because it situates learning within meaningful tasks through experience. (Luckan, 2016:59)

4.5.3 Environmental Psychology

Complexity and Simplicity of Learning Environments

Bell (1996) considers education as a central component of the interaction of the youth and provides them with the tools for life. Accordingly, the effects of the design of learning environments on the learning process have been of great interest to researchers (Bell, 1996:494). If architectural design features are affecting the learning process negatively, they must be remedied to allow educational goals to be attained. If an architectural design change in the learning environment can increase the effectiveness of education, the better (Bell, 1996:495).

Research has indicated that the traditional architectural design of classrooms, rectangular shaped with straight rows of desks, dates to medieval times. Changes to this architectural design can influence positive attitudes and greater participation. Modern designs consider open classrooms designed to free learners of traditional barriers, such as restrictive seating. In such settings, learners should have more opportunities to explore the learning environment. (Bell, 1996:496) This implies what Bell (1996) calls an 'open education' philosophy which is about freedom in movement and less structure in-class interactions.

Research shows that learners in open-plan learning environments spend less time in directed activity than in traditional settings and that there is a greater occurrence of group interactions in open-plan learning environments. This is because of flexibility in open-plan learning environments which is often accompanied by such. Problems with open plan learning environments designs are that there are less privacy and much noise. The flexibility provided by the open-plan learning environments can cause spatial coordination problems. Despite these problems, by combining aspects of traditional and open-plan learning environments, better environments may be created (Bell, 1996:497).

Bell (1996) notes that studies have indicated that the complexity of an environment can affect encouragement and performance in that setting. Too many stimuli may distract learners, however, extremely simple settings may be boring and equally detrimental to performance. Some researchers believe that classrooms should tend more toward the complex rather than the simple. Having more stimuli and opportunities present for environmental exploration provides an enriched environment that facilitates learning. Others disagree, arguing that complex learning environments are distracting and make it difficult for the learner to concentrate on work (Bell, 1996:497). Because things change with time, it is important to evaluate classroom design modifications continually. The Lycee Secondary School precedent in the figure 4.5.3 below shows how floor to ceiling fenestration can be designed to admit natural light for optimal productivity which is the effect that the environment can have for spaces to think, reflect, watch, see and do.

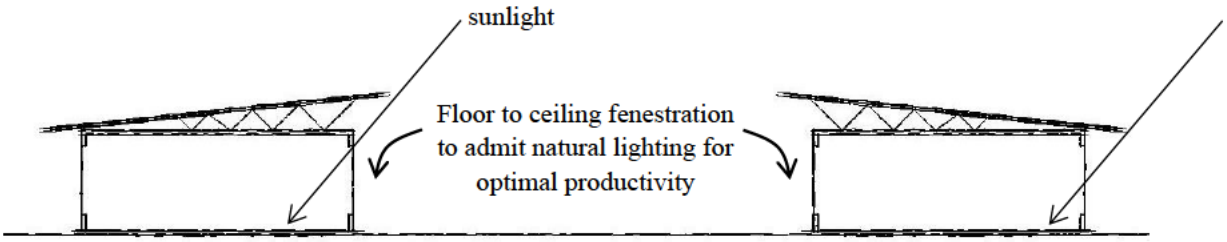


Figure 4.5.3: The Lycee Secondary School Section. (Source: Author)

4.5.4 Place-Based Learning and Experiential Learning through Environmental Psychology

Because problem-based learning is not a linear process, but reflective and cyclic, an arrangement of learning space that reflects as such is vital. (Luckan, 2016: 61) The random arrangement of learning spaces creates an irregular flow of space which has an unrestrictive effect on the mind. This stimulates the mind for creativity, thinking, and reflection. The research study learns that design principles for a learning environment to facilitate problem-based learning are the random arrangement of spaces that permit natural features inside the built environment for the building to not be perceived as a restrictive environment.

For effective problem-based learning, problems must be presented in their entirety with an open-ended and inquisitive nature to result in a range of solutions that would require social interaction for appropriate answers. Therefore, design principles for a learning environment to facilitate problem-based learning also includes spaces that open to a range of other spaces. (Luckan, 2016: 60)

Above mentioned is the learning environment for learners presented with a problem scenario in which they are required to analyse the problem and identify relevant facts. As students engage with the problem, they understand the problem better, while rationalizing and concluding possible solutions. (Luckan, 2016; 62) With regards to the learning styles of experiential learning which are thinking, reflecting, doing, and experience, the learning environment needs similar design principles as for problem-based learning.

4.5.5 Threshold Learning Concept

Architecturally, informal open spaces for field experiences where experienced community members can share knowledge with learners is a reflection of folktales or storytelling of the days where elderly would share stories to youth and reflects African storytelling, internalizing knowledge through audiobooks, platforms for learners to ask challenging questions, collaborative group work, demonstrating initiative towards the problem areas and targeting weak areas, being surrounded by the atmosphere of inspiration to learning. All of which can affect transformative learning.

These learning theories link with the literature as noted by Bell (1996) which states learning in the liminal space further entails the acquisition and use of new forms of written and spoken discourse and the internalizing of these. The research study understands this to mean where the processing of knowledge happens, is self-reflection. Thus, experiential learning, problem-based learning and threshold concept learning in liminal space are to be designed for architecturally.

These might include ‘readings from different perspectives, field experiences, videos, role-plays, simulations, and asking challenging questions’ all of which can affect transformative learning. These included collaborative group work, demonstrating initiative towards the problem areas which require confidence and asking for help, practice by tests that target weak areas, being surrounded by inspiration from peers, and a fun atmosphere to learning. Below is figure 4.5.5 showing a mind map summary of Threshold Learning Concept.

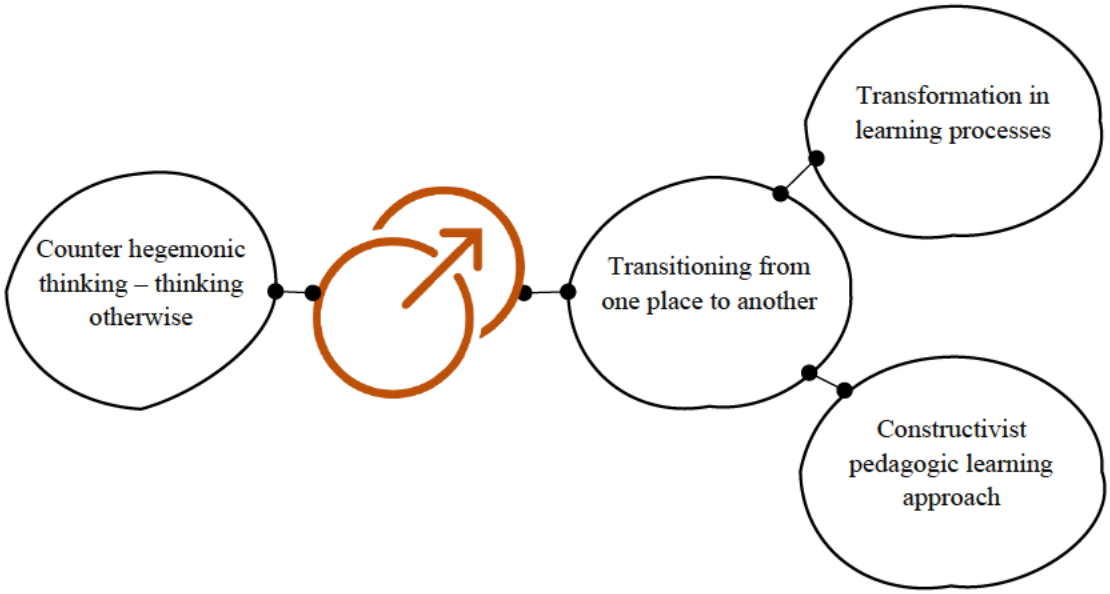


Figure 4.5.5: The Threshold Learning Concept. (Source: Author)

4.6 TRANSFORMATIVE LEARNING SPACES: Community Library, Sri Lanka

4.6.1 General Information

The Community Library provides the community with construction training through access to knowledge in the pursuit of economic development. The building is a source of knowledge to the local community who have been deprived of accessing knowledge. (Köhler, 2019)

4.6.2 Concept

The library is a platform to access knowledge. Multiple public and private spaces for reading are organized in and around the library. The building wraps around an internal courtyard. The transition through the building has a spatial progression which is an experiential journey (Köhler, 2019)

4.6.3 Spatial Planning Principles

The slender building is situated in the landscape and wraps around an inner courtyard. It is designed well with cross ventilation and daylighting. Indigenous materials such as earth walls and recycled materials reduce costs and the ecological footprint. The building runs down the hill playfully, incorporating sudden changes in spatial volumes, and framing distant views through its cubic protrusions. (Köhler, 2019)

The spatial planning principles resemble that of the isiZulu homestead architecture as mentioned by Mhlaba (2009). The sloped typography with some flat areas, thick shrubs, and grasslands of the isiZulu homesteads resembles the

same characteristics of the peri-urban area of the research study and the community library is an appropriate precedent to learn to spatially plan on such typography.

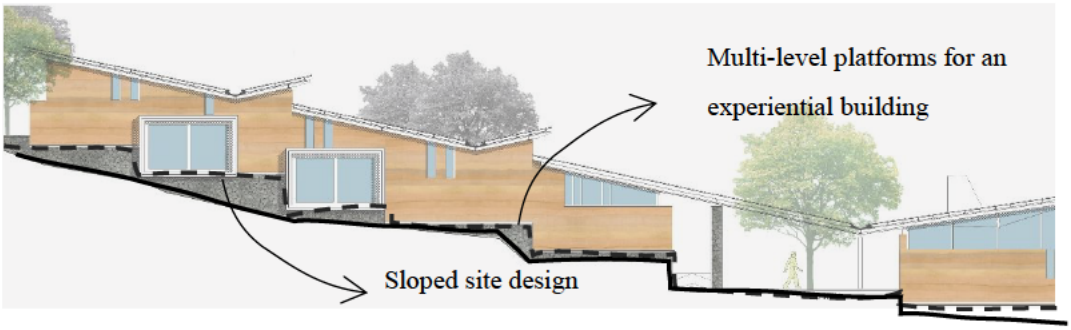


Figure 4.6.3i: The Community Library elevation. (Source: www.lafargeholcim-foundation.org)

The single-story building is sensitive to the natural landscape, touching the earth as lightly as possible. All existing trees are intact in creating this building. The main entrance to the library is through the covered veranda. (Köhler, 2019)

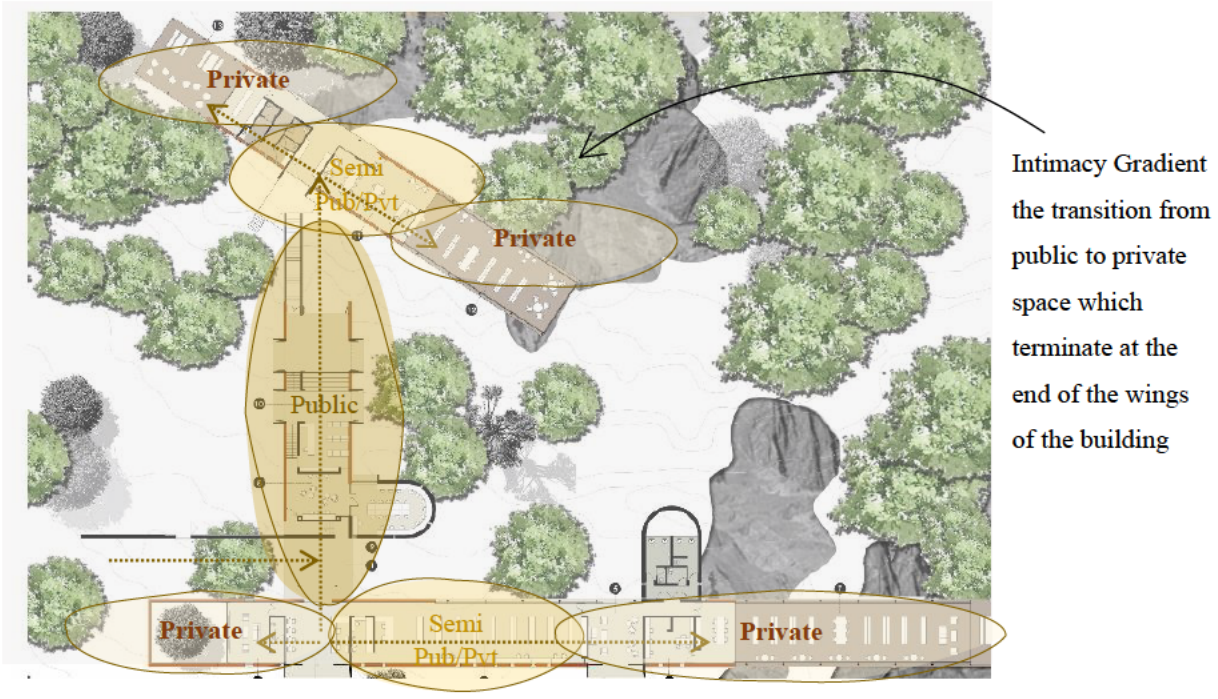


Figure 4.6.3ii: The Community Library floorplan. (Source: www.lafargeholcim-foundation.org)

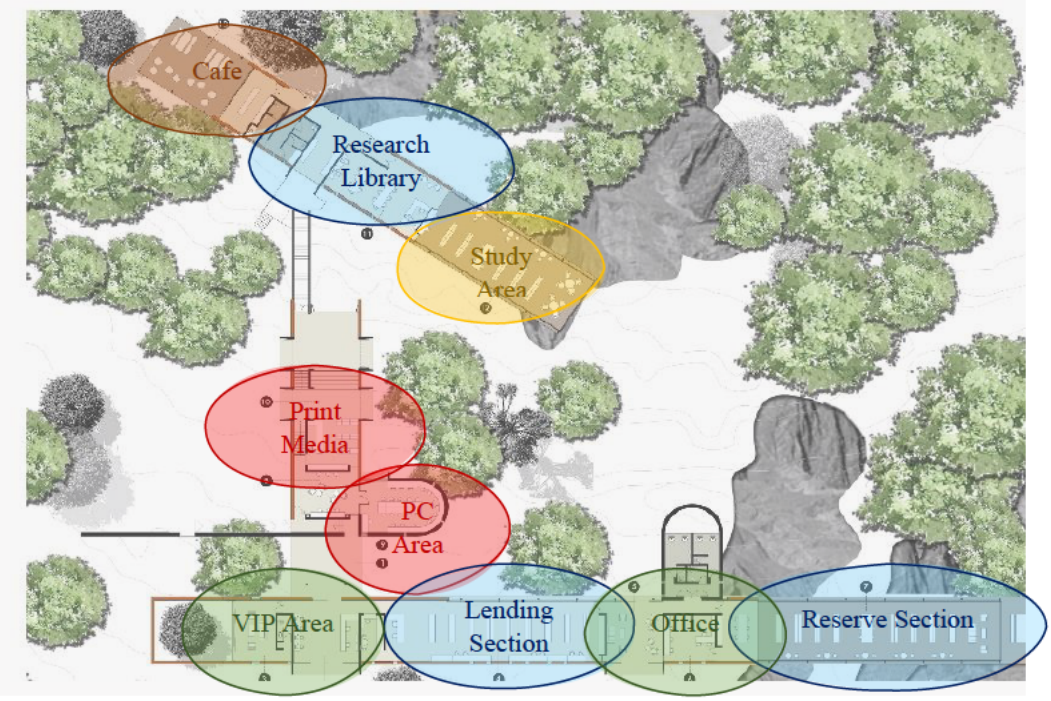


Figure 4.6.3iii: The Community Library floorplan. (Source: www.lafargeholcim-foundation.org; Author)

4.6.4 Physical Environment Influence on Architectural Design

Its linear footprint allows through ventilation and brings in natural light to all internal rooms. Skylights and the concrete protrusions bring in plenty of light and air, while also generating a formal curiosity to entice the building's young users. Passive cooling through cross and stack ventilation in addition to the use of renewable, recycled, zero-carbon emitting materials/processes reduces the building's life-cycle cost. (Köhler, 2019)

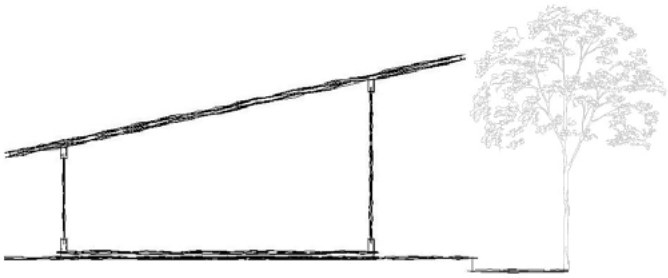


Figure 4.6.4: The Community Library sections. (Source: www.lafargeholcim-foundation.org)

4.6.5 Unique Design Features

Technically innovative use of rammed-earth walls demonstrates the first attempt in Sri Lanka to use that material for such scale/type of building. The project seeks to transform the army into a new, society-building institution, focused on knowledge creation. (Köhler, 2019)

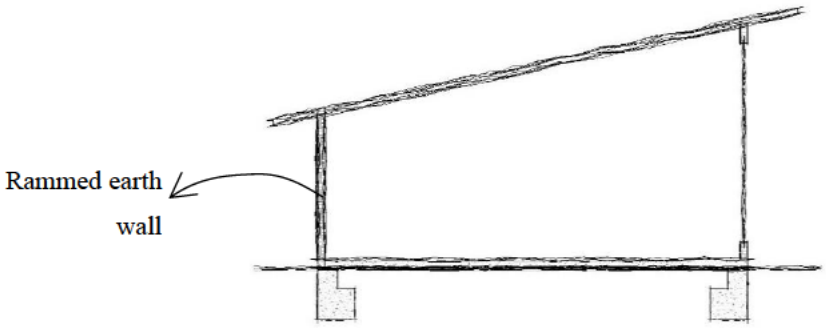


Figure 4.6.5: The Community Library sections. (Source: www.lafargeholcim-foundation.org)

4.6.6 Learning Theories Relevance

A space for reflective observation learning and abstract conceptualization learning as mentioned by Kolb (Luckan, 2016) within the experiential learning theory, needs the atmosphere of the physical environment to compliment reflection and thinking because the exposure of natural elements in learning spaces contributes towards productivity in learning, especially with regards to reflection and thinking.

The exposure of natural elements to learning spaces allows for the processing, gathering, and transferring of information to occur more seamlessly than in an environment that has less exposure to natural elements. Therefore reflective and thinking learning spaces need to let the atmosphere of the physical environment inside. This includes natural lighting, greenery, and foliage. This means the built environment needs large fenestrations to be able to let the physical environment inside the building. (Köhler, 2019) Hence the community library is located within many trees, shrubs, and greenery. The community library also has large fenestration to let in the views of the physical environment and natural lighting, as shown in figure 4.6.6 below.

Because the built environment is designed in such a way to affect the psychology of people within the library to create an atmosphere that is conducive for learning, environmental psychology integrates the built and physical environment for learning. When grasping and gathering information, which is what concrete experimentation of experiential learning theory speaks of, as stated by Kolb (Luckan, 2016), a feeling of excitement and inspiration is felt by learners which is the aim of learning spaces; to gain knowledge.

Figure 4.6.6 i: The Community Library. (Source: www.lafargeholcim-foundation.org)

Figure 4.6.6 ii: The Community Library. (Source: www.lafargeholcim-foundation.org)

A variety of learning spaces arranged randomly creates an irregular flow of space which has an unrestrictive effect on the mind. This stimulates the mind for creativity, thinking, and reflection. This principle is expressed in the precedent by the library learning space as shown in figure 4.6.6i above. Alongside the library, space is a print media reading area, a computer lab, children's library, research, and academic library and study area. These are all active experimentation spaces according to experiential learning theory as stated by Kolb (Luckan, 2016)

Figure 4.6.6 iii: The Community Library sections. (Source: www.lafargeholcim-foundation.org)

4.7 CONCLUSION

The Community Library building sitting on the sloped typography with some flat areas, thick shrubs and grasslands resemble the isiZulu homesteads because these are some characteristics found there. This is therefore an appropriate precedent to learn to spatially plan on such typography and create a familiar environment that the learners of the peri- urban area of the study can connect with. Thus, a culture of learning can be engaged with as these kinds of spaces are open structures that allow nature within the building and create stimulating as well as motivating spaces. This is the principle that the research study learns from the design of the Community Library.

CHAPTER FIVE

TRANSFORMATIVE LEARNING ENVIRONMENT TOWARDS A LIBERATED LEARNING APPROACH: Grantleigh Science Centre, Richards Bay

5.1 INTRODUCTION

The unique Grantleigh Titanium Learning Centre joins the Grantleigh College. The facility is a development initiative funded by Richards Bay Minerals (RBM) to host top achieving students from surrounding rural communities. While receiving education in science and technology, students are also allowed to integrate with the adjacent private school's counterparts. (Moocroft, 2013)

5.2 LOCATION

The new TLC 'Titanium Learning Centre' is located approximately 25km north of Richards Bay in an area called Mposa in Kwa – Zulu Natal at Grantleigh Private School. It is located soon after off ramping the N2 freeway. The neighbouring building is the Reptile City shown in figure 5.2 ii. It is adjacent to the Mposa river which flows away from the site and is accessed by road P425. Some residential areas are located on one side and sugar cane plantations and trees surround the other sides of the site.

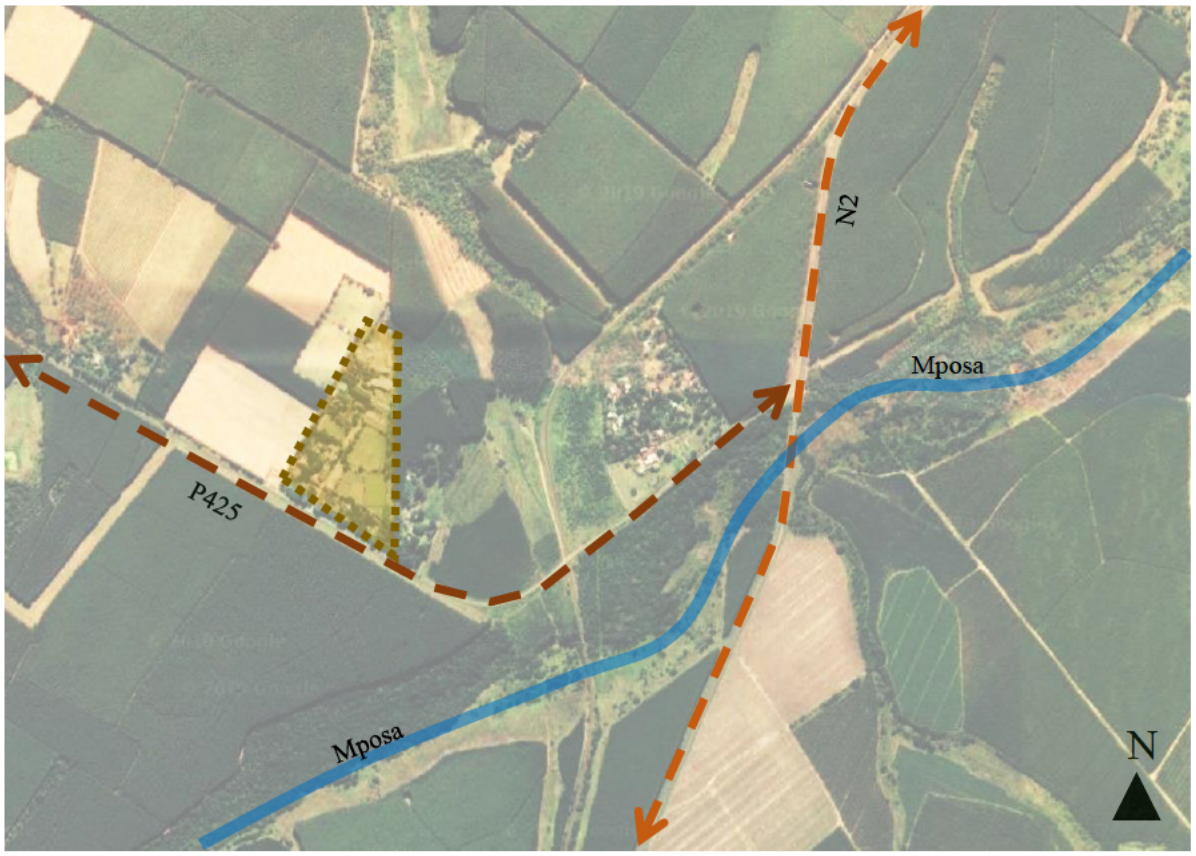


Figure 5.2 i: The Grantleigh Science Centre Locality Plan. (Source: www.google.com)

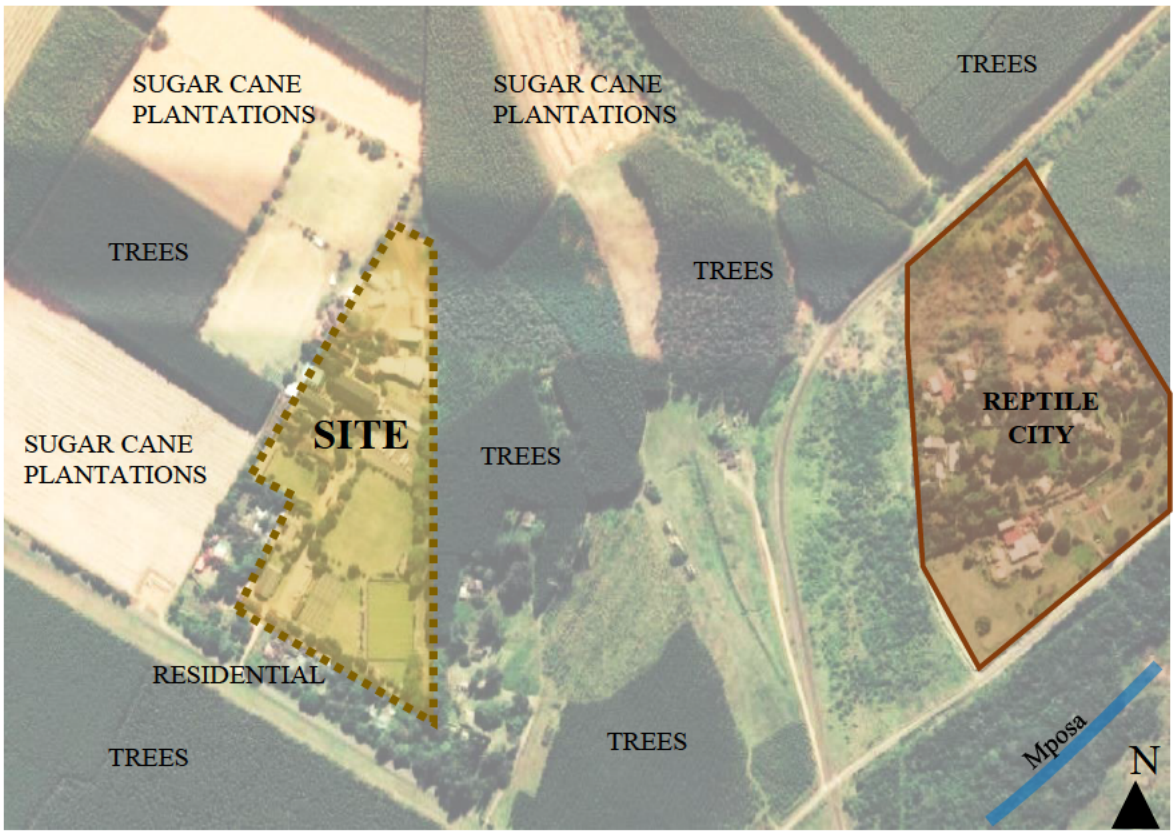


Figure 5.2 ii: The Grantleigh Science Centre Site Plan. (Source: www.google.com)

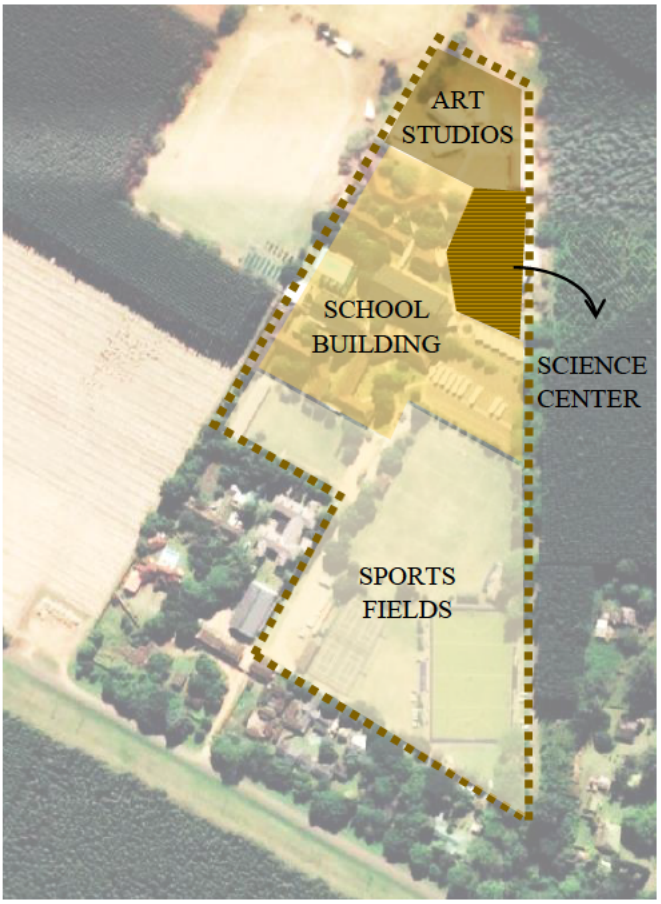


Figure 5.2 iii: The Grantleigh Science Centre Immediate Context. (Source: www.google.com

5.3 EMPIRICAL DATA

5.3.1 General Information

The project was funded by Richards Bay Minerals as a development initiative to host top achieving students from rural disadvantaged areas allowing them to integrate with pupils of Grantleigh School. This initiative facilitates the spread of science and technology to broader rural communities. (Construction, 2013)

The building addresses the fact we can create modern, advanced, and inspiring architecture in an existing environment that other people from rural surrounds come to and it is a bridge between the gap children and educators of the disadvantaged communities and those of privileged (wealthier environment). This allows children of disadvantaged backgrounds to the other children and aspire to do better for themselves, families, and communities by granting them access to use such facilities. (Hendricks, 2012)

The building was built for the use of the Bambisani Trust which would bring all rural surroundings, mainly top achievers that can't afford the expensive school fees of such private school, the opportunity to study in a leading environment with the idea is to inspire them so they can go back to their communities and inspire more kids to excel in their studies to reach that level and get such opportunities. (Hendricks, 2012)

5.3.2 Concept

Hendricks (2012) states that the intention and design drive of the building is basically to showcase maths and science through using narratives such as the rib cage of the bird to show flight and motion through the building, to express all the detailing to be transparent so that users and learners can learn through their interactions in the building, etc. in the bathrooms, the foyer, basically everything is supposed the be a learning experience. (Hendricks, 2012)

The roof concept of the main auditorium building was morphed from the likes of a rib cage of a bird as seen in the figure 4.7.3.2 below deriving characteristic elements of flight, motion, and lightness which to be interpreted as an inspiration for learners to reach their goals and push through their boundaries because the sky is the limit. (Hendricks, 2012)

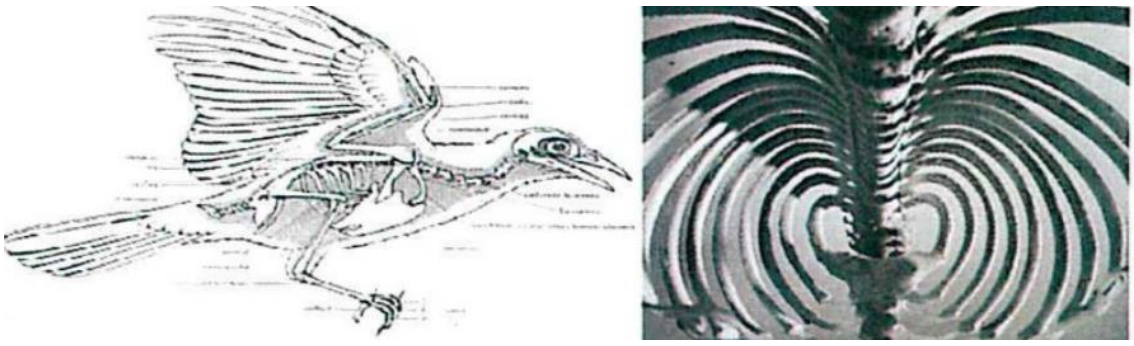


Figure 5.3.2 i: The rib cage concept of the Grantleigh Science Centre. (Source: Hendricks, 2012)

The figure 5.3.2 ii below shows how the rib cage concept was architecturally incorporated within the rood stricture. The roof is thus the innovative part of the building. It opposes the neoclassical style of the neighbouring buildings

within Grantleigh because it is non-conventional. It speaks for the Grantleigh Science Centre and represents it as a reaction to the conventional learning approach and introduces a creative, lively, and inspiring appeal to the building, which is how the Grantleigh Science Centre believes learning approaches should transform to be. (Hendricks, 2012)

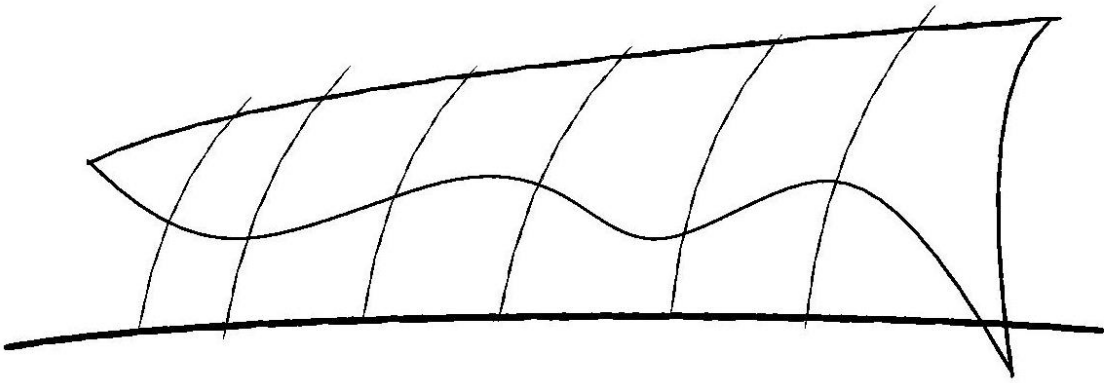


Figure 5.3.2 ii: The rib cage concept sketch of the Grantleigh Science Centre. (Source: Author)

Figure 5.3.2 iii: The roof of the Grantleigh Science Centre. (Source: Hendricks, 2012)

5.3.3 Spatial Planning Principles

The existing current building of Grantleigh was done in a neoclassical style. A courtyard was created in between the school and the new science centre as a connection between the new Grantleigh Science Centre and the existing neo-classical style building within Grantleigh. The courtyard was also created as a learning space in the outdoors which adds dynamism to the building.

The learning experience is the principle of the building. The main building consists of two science laboratories on the first floor, an auditorium, office, and a boardroom (Moocroft, 2013) The central courtyard is an outdoor learning area where outdoor lectures take place. (Moocroft, 2013)

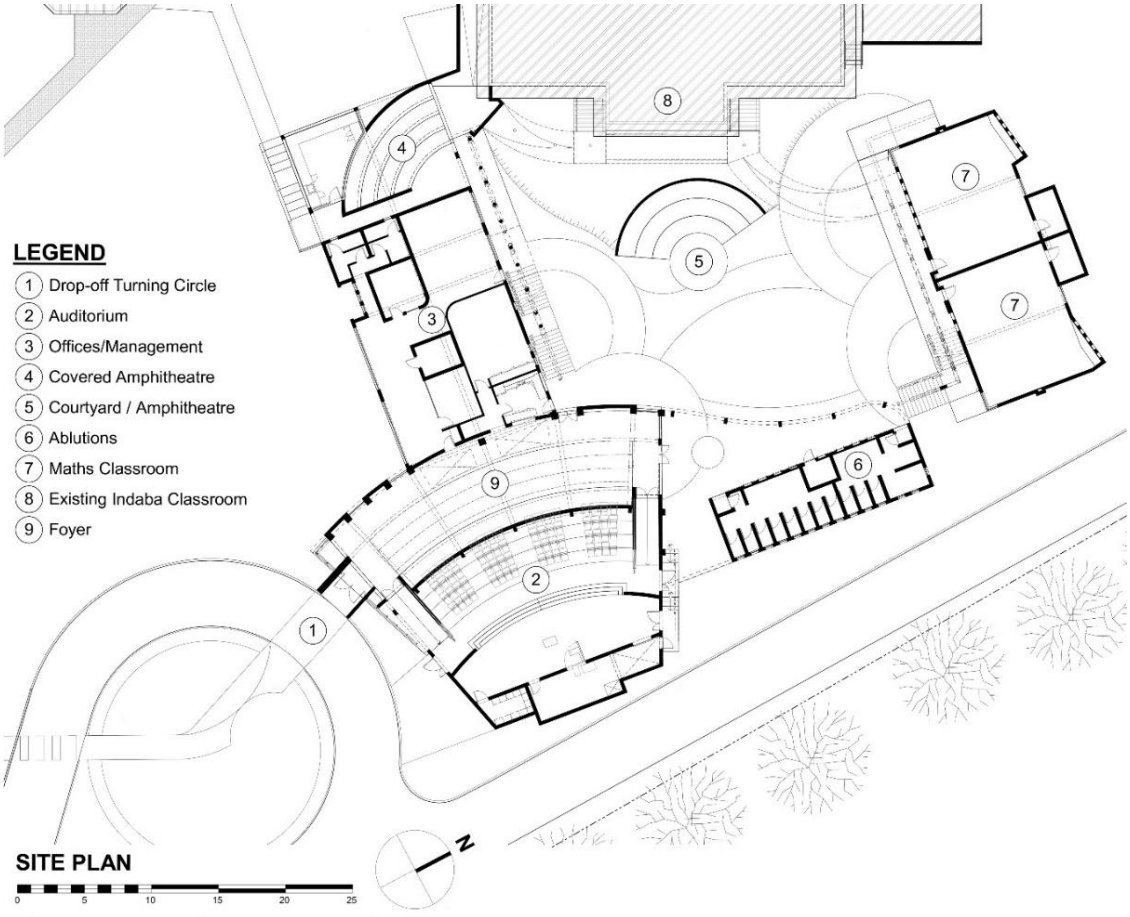


Figure 5.3.3: The floor plan of the Grantleigh Science Centre. (Source: Hendricks, 2012)

5.3.4 Physical Environment Influence on Architectural Design

For sustainability purposes to lower the use of electricity usage in the building and to maximize the use of natural lighting within the building, the architectural design was influenced by the skylight in the foyer space which admits natural light and thus does not require much artificial lighting. Therefore, the skylights are multiplied in a row across the foyer and this creates a rhythm for the natural light to enter the foyer space. The curve initiated from the rib cage concept is transferred to the architectural design of the skylights as shown in the figure below. (Hendricks, 2012)

Figure 5.3.4: The skylight of the Grantleigh Science Centre. (Source: Hendricks, 2012)

5.3.5 Unique Design Features

The auditorium and other areas are entered through the main foyer. The entrance is framed by curved steel structure around the surrounding garden. The foyer is open to function as a link to the courtyard and outdoor amphitheatre. (Hendricks, 2012)

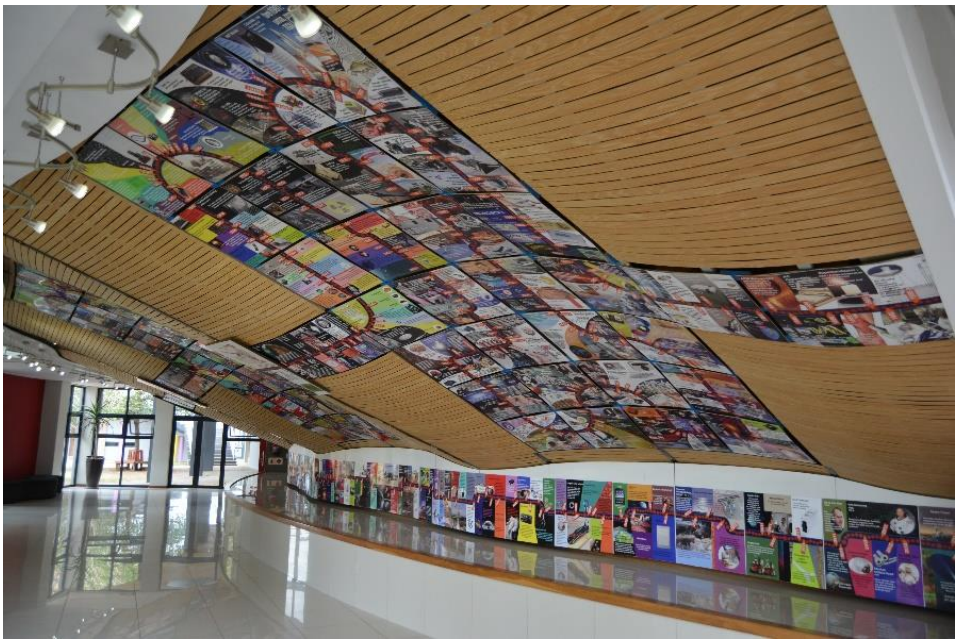


Figure 5.3.5: The skylight of the Grantleigh Science Centre. (Source: Hendricks, 2012)

The direct learning process of see, learn, experience, and feel were put in everything they did mainly to carry out the transparent learning concept. Learners are exposed to who were the pioneers and inventors in science history, as seen in the figure 5.3.5 above in the foyer space is a historic timeline of scientific innovations. The building acts as a narrative of education to be an educational tool. (Hendricks, 2012)

5.3.6 Learning Theories Relevance

The foyer shown in the figure above is appropriate for showcasing Reflective Observation of the Experiential Learning Theory, as stated by Kolb (Luckan,2016) because it is a transition space from one space to another and an entrance space to the building but is also an open-ended space that is educational with its historic timeline of scientific innovations.

The section in figure 5.3.6 ii below shows the learning spaces in the Grantleigh Science Centre which are located above and the administration spaces which are located below. The learning spaces are an auditorium shown in the figure 5.3.6i below, science classroom, and an outdoor learning area shown in figure 5.3.6 ii below. This shows a variety of learning spaces which is non-conventional, unlike the conventional classroom learning spaces which were once at Grantleigh before the Science Centre was built.

Figure 5.3.6 i: The auditorium of the Grantleigh Science Centre. (Source: Hendricks, 2012)

Luckan (2016) acknowledges Problem-Based Learning Theory as a vital integration between environmental and social factors as well as individual internalization for effective learning to occur. This gives a transformative experience to learning, which is expressed especially in the outdoor learning space in the courtyard. Therefore, the architectural design incorporates Problem-Based Learning Theory by the outdoor learning space in the courtyard.

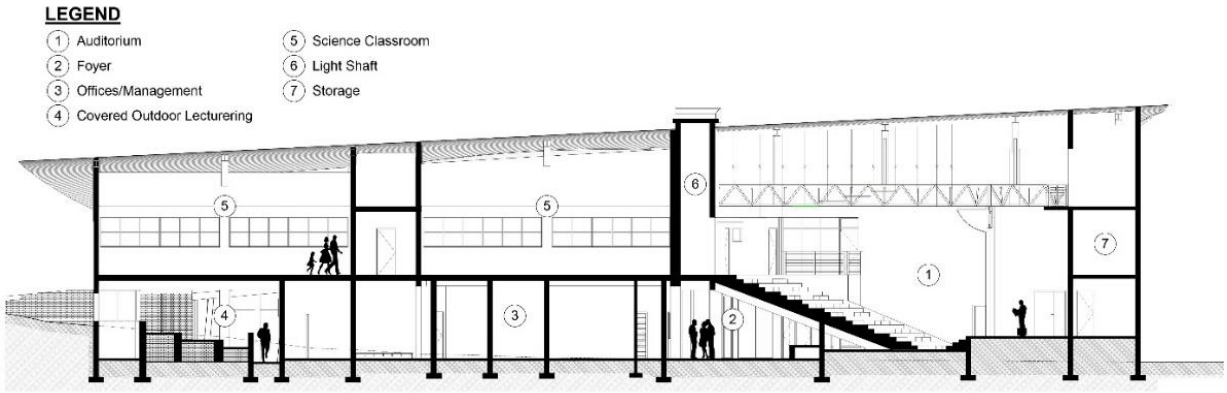


Figure 5.3.6 ii: The section of the Grantleigh Science Centre. (Source: Hendricks, 2012)

Problem Based Learning is defined by a learner's own goals, which are influenced by personal feelings and opinions. This challenges the learners thinking because learning is connected to attitudes and beliefs. Therefore, life experiences and culture within the broader social environment context become intrinsic in establishing understanding and creating meaning within a Problem-Based Learning paradigm. The Grantleigh Science Centre incorporates learners' personal feelings and opinions, attitudes, and beliefs to learning experience due to the variety of learning spaces that allow learners to be more vocal and conversational and is influenced in the architectural design.

Figure 5.3.6 iii: The auditorium of the Grantleigh Science Centre. (Source: Hendricks, 2012)

The art studio shown in figure 5.3.6 iv below showcases Active Experimentation and Reflective Observation of Experiential Learning Theory through the outdoor amphitheatre space allowing for self-expression. This relates to Zavala (2016) who states counter-storytelling gives a deliberate attempt to develop a form of expression to enable colonized people to understand their present situation which colonialism created by limiting people from Africanism through its structural arrangements.

Zavala (2016) goes on to state this retaining memory is integral to reclaiming languages, spaces, and identities. Healing entails a particular form of recovery from the physical, social, cultural psychological historical trauma experienced by colonized people. Reclaiming of cultural identities is important to this strategy thus rethinking learning processes inherited from western learning processes is key. This strategy is tied to people's identities and is an engagement of the process of reclaiming who they are. This relates seeing as though the research study aims to transform learning processes towards a liberated approach that integrates indigenous cultural references for the proposed building to be relatable to its users.

Figure 5.3.6 iv: The auditorium of the Grantleigh Science Centre. (Source: Hendricks, 2012)

5.3.7 Tactility/Materiality

Hendricks (2012) states that the roof form is exclusive as each curved, cold-rolled steel beam increases in span from the west to the east portion of the main building enhancing its organic aesthetic. (Hendricks, 2012) The rib cage concept is interpreted architecturally with a curved steel beam skeletal structure that concludes into the site. This is seen in figure 5.3.7 below.

Figure 5.3.7: The materiality of the Grantleigh Science Centre. (Source: Hendricks, 2012)

5.4 CONCLUSION

The Grantleigh Science Centre as the case study functions efficiently and provides for many of the needs within the community. The Grantleigh Science Centre integrates underprivileged communities showing their inclusivity. It positions learners in a high position in the pursuit of greatness in education for all. The architecture is bold and stands out from the rest of the Grantleigh school architecture deliberately because it is transformative in architecture as well as in the function of space. The way steel was used in the building shows bold use of materiality, just as bold the architecture is, so is the learning approach adopted in the Grantleigh Science Centre. It opposes conventional modular and independent learning spaces and encourages creative transformative and collaborative environments for learning.

CHAPTER SIX

ANALYSIS AND DISCUSSION

6.1 INTRODUCTION

This chapter aims to communicate the development of the theoretical discourse in the context of the empirical data obtained through the interviews conducted and study the local building: The Grantleigh Science Centre in Richards Bay. It is to reflect the synthesis of the theories discussed within the local context of the case study and other empirical data collected.

The research study conducted the fieldwork, observed the case study and collected empirical data though the interview with the architect of the building. Refer to Data Analysis further on in this chapter. The research study analysed the Grantleigh Science Centre on principles discussed in the theoretical framework to see the relevance and applicability of the concepts defined within it. Photographs are included in this chapter showing the observations, assessment of building spaces, and experiences relevant to the study. The research study collected these for evidence that supports and proves the literature of the research study. In addition, drawings of the building are obtained and analysed with conclusions supported by photographic data.

It is clear from the fieldwork findings that there is little integration of learning processes and participatory experience in existing learning environments. The case study is chosen because it is relevant to the findings of the theoretical discussion, and therefore most applicable to this dissertation. It provides insight into recently built learning environments thus resulting in findings that are transformative from conventional learning environments. There are elements of the theoretical discourse which are seen to have been applied well to the design of the case study which is analysed and discussed below.

6.2 THRESHOLD CONCEPTS IN EDUCATION

Threshold concepts in education express learning processes to be an exploration of the spatial metaphor of liminality as a transformative space, as stated by Land, Rattray, Vivian (2014) Learning in the liminal space further entails the acquisition and use of new forms of written and spoken discourse and the internalizing of these. It examines how the learners' experience of acquisition of new knowledge can lead to partial understanding or confusion. Successful liminal transition through semiotic analysis is through the work of Vivian (2012) to help clarify and simplify the representation of what might be typical student learning experiences. This describes an envisioned theoretical discourse to be applied within learning environments.

The empirical findings reflect such a theoretical discourse can be applied within learning environments. The findings from the study of Grantleigh Science Learning Centre demonstrates learning that transitions from partial understanding or confusion to a clarified and simplified representation of the information through theoretical discourses which are experiential learning, problem-based learning, and environmental psychology. These are depicted through the outdoor amphitheatre and art studio amphitheatre as transformative learning spaces because they encourage participatory experience in learning. Refer to figure 6.2i, 6.2ii, and 6.2iii below.

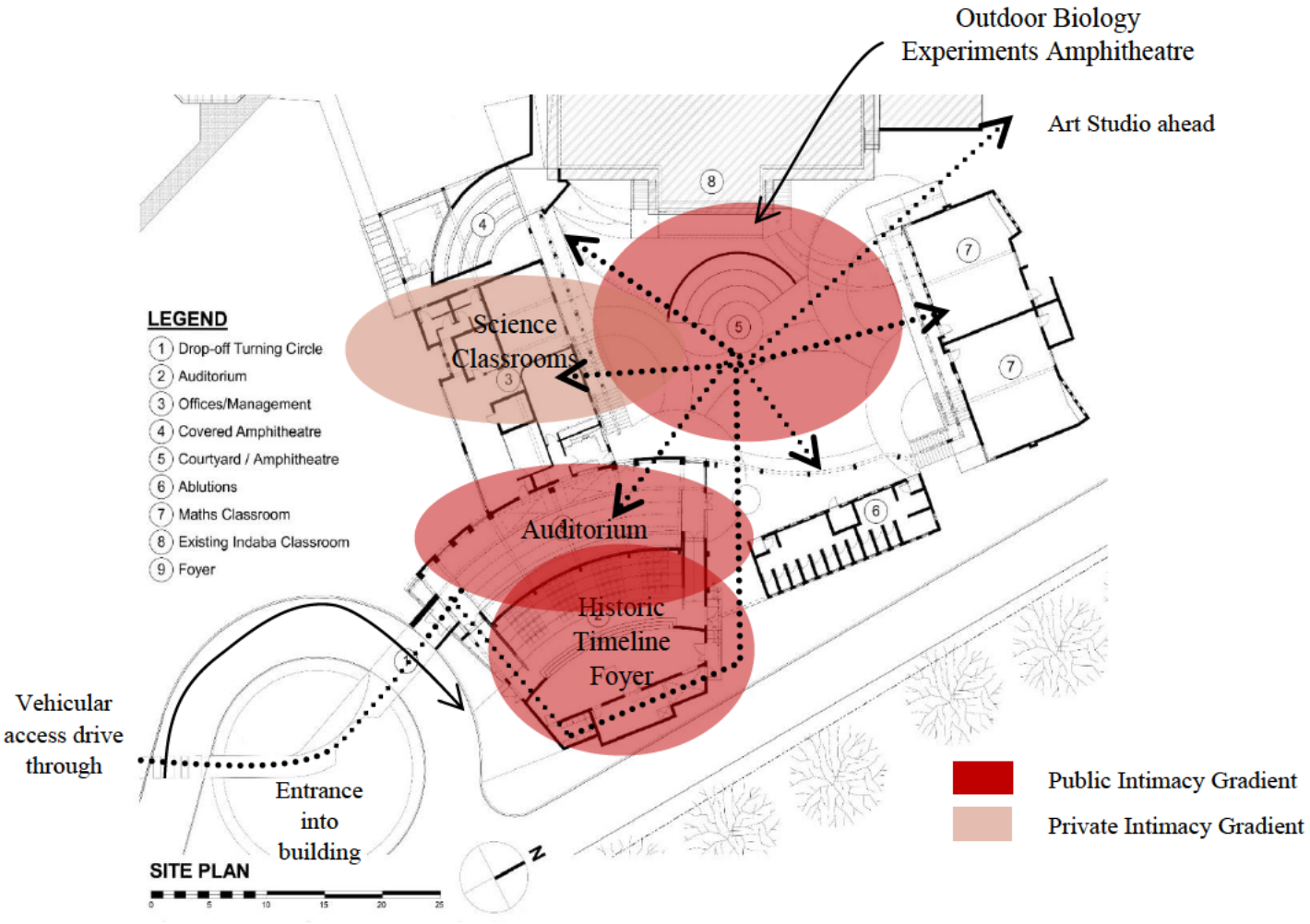


Figure 6.2i: The floorplan showing the courtyard amphitheatre of the Grantleigh Science Centre. (Source: Hendricks, 2012)

Figure 6.2.ii: The Courtyard Amphitheatre of the Grantleigh Science Centre. (Source: By Author

Figure 6.2.iii: The Art Studio Amphitheatre of the Grantleigh Science Centre. (Source: By Author)

6.3 LEARNING SPACES IN DECOLONIAL URBAN CONTEXTS

The research study aims to transform learning processes towards a liberated approach that integrates indigenous cultural references for the proposed building to be relatable to its users. Cultural relevance in any place is imperative to create a connection between a place and its users therefore it is crucial architectural design to respond to culture for its users to relate to a place. Zavala (2016) states, healing from the physical, social, cultural, and psychological historical trauma experienced by colonized people is imperative. Reclaiming cultural identities is important, thus rethinking learning processes inherited from western learning processes is key. Counter-storytelling develops a form of expression to enable colonized people to be liberated. These are all integral to reclaiming African identity.

The empirical findings reflect that such a theoretical discourse can be applied within learning environments. The findings from the study of Grantleigh Science Learning Centre demonstrate the abovementioned theoretical discourse through the art studio outdoor amphitheatre space as shown in figure 6.2iii above which allows for self-expression.

6.4 ENVISIONING TRANSFORMATIVE LEARNING

The importance of transformative learning spaces is seen in the case study examined. In the case study analysed it is evident that conventional learning environments that practice the behaviourist approach in pedagogic approaches had implications for learning space development. Learning spaces did not evolve due to behaviourist learning approach. It showed structured arrangements in seating within modular standardized and independent spaces within a larger structure; and an objective of attaining knowledge from an educator.

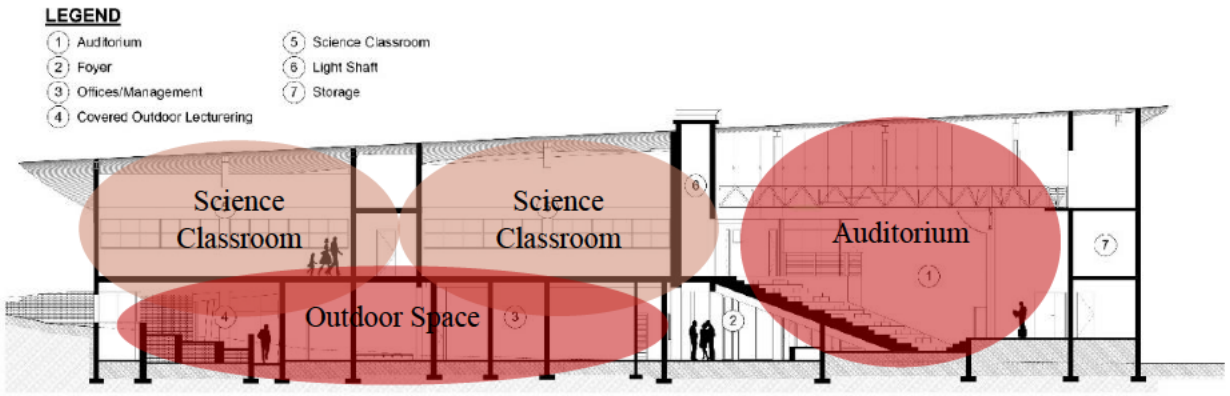


Figure 6.4i: The Auditorium of Grantleigh Science Centre. (Source: Hendricks, 2012)

Less of a constructivist approach leaves the learning process in the learners' control thus allowing learning spaces to develop and evolve towards a liberated and learner-focused environment through theoretical application into practice.

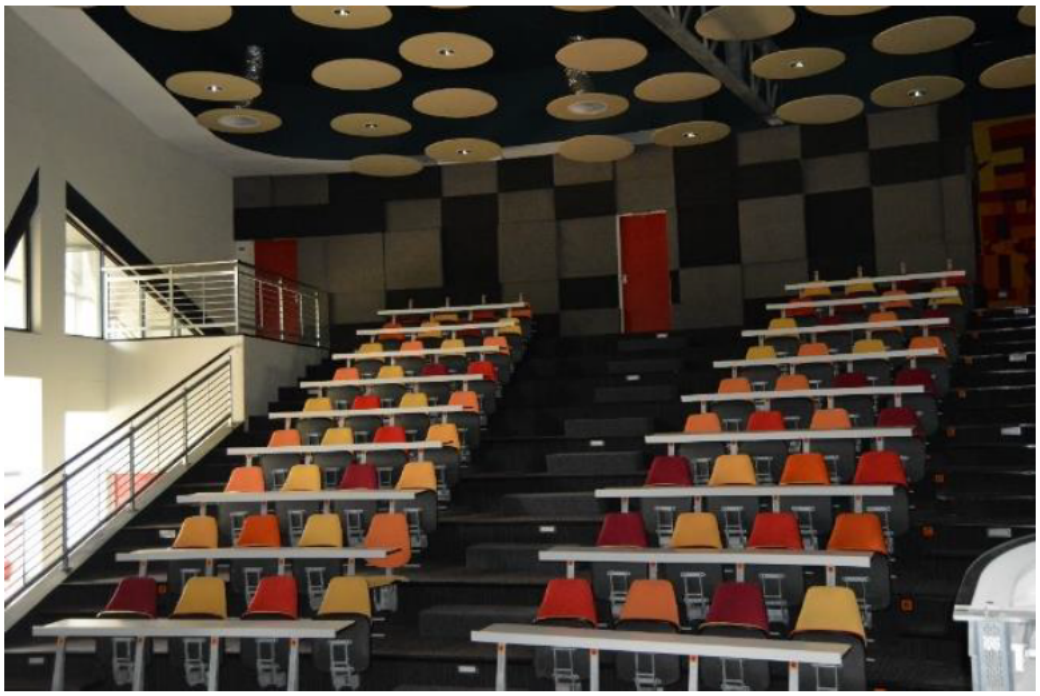


Figure 6.4ii: The Auditorium of Grantleigh Science Centre. (Source: Hendricks, 2012)

In the case study observed, it was evident that the Grantleigh Learning Centre took into consideration the constructivist learning approach in learning space development. A combination of different types of learning spaces creates a flexible learning environment and thus accelerates a culture for learning. The Grantleigh Learning Centre has conventional classroom spaces as it is located within a school, however, it has created a bridge between behaviourist and constructivist learning approaches by combining the two as seen in all the figures in this chapter. The classrooms which show a behaviourist approach are combined with an auditorium, an art studio amphitheatre, and a courtyard amphitheatre which show a constructivist approach.

The case study reflects transformative learning spaces shown in figures 6.4i, 6.4ii, 6.4iii that are responsive architecture which cultivates a culture of learning. It has alternative learning environments, hard and soft learning spaces, rethinks learning spaces, and how learning is facilitated in these spaces. It shows learning processes as a transformative influence on built form and focuses on key principles to take into consideration in achieving a liberated and de-institutionalized learning environment that has constantly accessible learning resources.

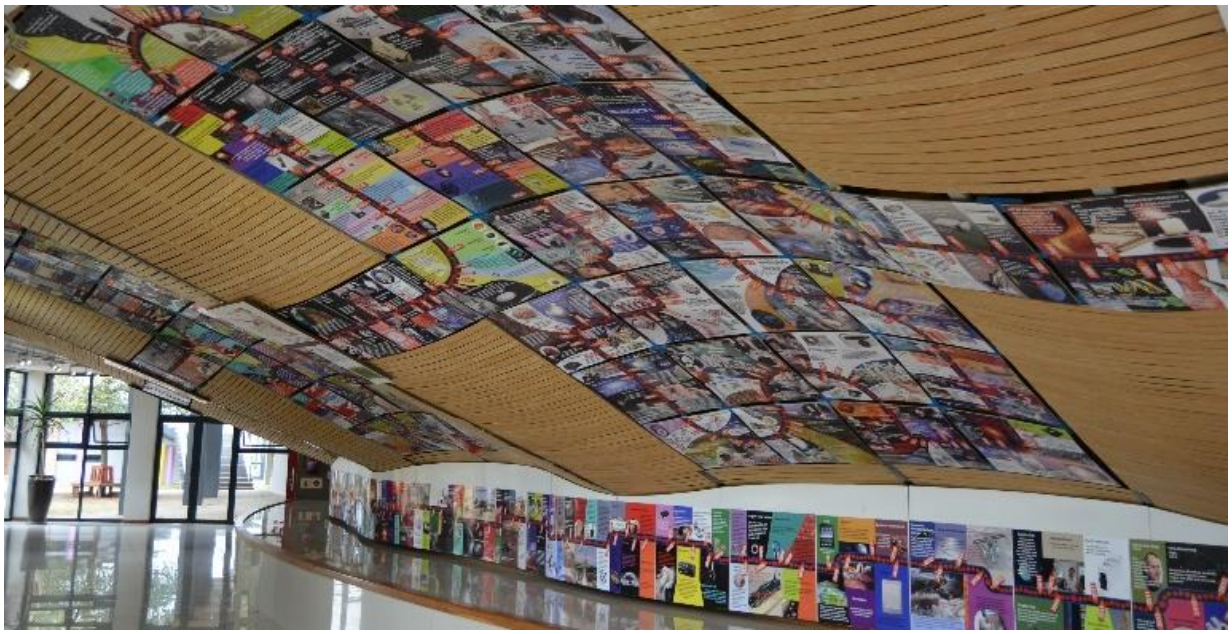


Figure 6.4iii: Floorplan showing the Historical Timeline Foyer Space (Source: Hendricks, 2012)

6.5 DATA ANALYSIS

A qualitative interview was used for data collection of this research study. The data collection instrument used was an interview schedule with set questions that are open-ended to allow for elaborated answers and further engagement on the topic. Information was gathered through semi-structured interviews with the key informant who is the architect of the building. The practicing architect was questioned about the design and intentions of the case study to draw lessons relevant to the case study with regards to learning processes and the influence of learning on the built form to stimulate learners for a culture of learning.

Informant 1 highlighted how the building was designed for learners to have a learning experience as they transition through the building. The conceptual narrative showed the intention was to motivate and encourage learners to fly high and prosper in their goals through their learning experience. This shows theoretical and conceptual outcomes of a learning environment and how this can create a socially responsive architecture. Informant 1 also highlighted the design of the building for different learning styles so that the building appeals to the learner by giving versatility to the learner experience and shows how learning according to their own goals can be achieved.

Therefore, not only are there conventional classroom spaces, there are also auditorium spaces, outdoor biology experiments spaces, outdoor are and drama spaces, science and biology labs. In addition, the building being a learning experience was shown through exposing the structural parts of the building that would normally be concealed. In exposing learners to such environments, it inspires them to perform better academically. This answers the research study questions and shows how learning processes can influence the design of learning spaces.

Below is the interview schedule questions with the answers. Refer to appendix I interview schedule A, informant 1.

Interview Schedule A, Informant 1

Questions	**Answers**
What are the intentions, design drivers, and design principles of the building?	The intention and design drive of the building is basically to showcase maths and science through using narratives such as the rib cage of the bird to show flight and motion through the building, to express all the detailing to be transparent so that users and learners can learn through their interactions in the building. Such places include the bathrooms and the foyer. Everything is supposed the be a learning experience.
How does the building relate or respond to the location?	The learning experience is the principle of the building. The existing current building of Grantleigh was done in a neoclassical style so we created a courtyard in between the school and the new science centre for it to be protective and create a learning space as this will also provide a great vista of this expressive building when driving down the tree aligned road. The left-hand side has forestry next to the building so every time they cut down the forest there's always a different appearance of the building in the landscape.
How do learning processes encourage a culture of learning?	The direct learning process of see, learn, experience, and feel was included in everything about the building mainly to carry out the transparent learning concept. This was the vision, for the kids to learn something whilst they are sitting or walking around the building. They could be learning about how the earth is structured, who the pioneers and inventors of the world are, etc. Everything about the building has a narrative of education and is seen to be an educational tool.

What learning processes influence the design of the building?	The building addresses the fact we can create modern, advanced, and inspiring architecture in an existing environment that other people from rural surrounds come. It is a bridge between the gap children and educators of the disadvantaged communities and those of privileged (wealthier environment). This allows children of disadvantaged backgrounds to aspire to do better for themselves, families, and communities by granting them access to use such facilities.
What societal challenges does the building address?	The building was built for the use of the Bambisani Trust which would bring all rural surroundings, mainly top achievers that can't afford the expensive school fees of such private school, the opportunity to study in a leading environment with the idea is to inspire them so they can go back to their communities and inspire more kids to excel in their studies to reach that level and get such opportunities.

Information was gathered through semi-structured interviews with two other key informants of Umlazi Commercial Technical High School to offer information that is applicable and relevant to the intended locally based design. The two educators were interviewed to offer insight into the learning barriers encountered by the youth which impedes their experience of learning and does not encourage a culture to learn.

Informant 1 explained that the school functions according to a behaviourist learning process which does not give learners much control over their learning because they learn by information given from educators and they are then assessed by standardized assessments. The informant highlighted that in the peri-urban contexts, the learners face social issues which hinder their academic performance.

The informant also explained that the high school is a technical high school which responds to scarce skills that are in demand, however, these workshop spaces are not functioning due to lack of maintenance and funds, which leaves learners deprived of such valuable and vital education. This contributes to the barriers which hinder in learning and motivates the research study for a proposed learning environment that fills in such gaps that exist currently in high schools in the area.

Informant B touched on how learners lack control of their learning due to lack of educational resources for their discovery in learning. The data collected from these informants answers the research question with regards to what the learning spaces in de-colonial urban contexts are. Below are the interview schedule questions with the answers. Refer to appendix II, interview schedule B, informant 1 and informant 2.

Interview Schedule B, Informant 1

Questions	**Answers**
What learning process does the school function with? Behaviourist or Constructivist?	Informant 1: Behaviourist learning because learning is not by learner's discovery.
How do learners respond to the learning process of the school?	Informant 1: Social issues such as substance abuse affects how learners respond to the learning processes therefore the interest in learning declines. Here is a test paper of a learner who was very well behaved, and his performance dropped because he mixed with the wrong crowd. I now must write a mark that I know does not reflect the potential of this learner.
What other learning spaces are there besides conventional classrooms?	Informant 1: This school is a technical high school therefore it has technical workshops such as civil, mechanical, electrical, and automotive workshops. The school also has labs such as computer, science, and biology labs. There is a library space, media centre, and drawing rooms.
Are there spaces that the school envisions to have that are currently not within the school?	Informant 1: 'Yes, the sports fields could be of better use and the pavilion by the sports field could be of better use, but the spaces are dilapidated. There is a space by the sports field that looked like it should've been a swimming pool, and when you look at the prototype of the school at reception you will see what was initially envisioned for the school but somewhere and somehow it was not executed. The sports facility is vandalized. The sports facility must be of use, but it is not. The tennis court is not appealing, as well as the pavilion. Also, disruptive learners could potentially fall under special needs requirements or may just need to be in learning environments that better suit them, like learners who are very artistic and could excel in that kind of learning environment instead of being subjected to writing all day. So, you see the problem is placement, they are not in the right place. Remedial is not available. With regards to the learner who cannot see well, measures can be put in place to accommodate for such. If the learner were correctly identified, we could accommodate such that when the learner must read, we do not give him the material of small font, rather the learner gets material of a bigger font. Or if he cannot see that well I would record the material for the learner to listen and the learner responds by speech instead of writing''
What learning barriers do learners encounter?	Informant 1: 'Because of enrolment numbers are too high, when we enter the workshop spaces, we can only accommodate a certain number of learners at a time, the floor space area is not big enough to accommodate the number of learners which creates an infrastructural challenge.' 'There are allocated spaces, such as the automotive workshop that end up not being of use because of such challenges. Civil, mechanical, and electrical equipment in the workshops is of a standard level but are not enough for

	optimal learning. The issue of lack of enough equipment in the school is caused by contractual issues between government and service providers, which creates an equipment challenge.' 'The drawing room and media centre cannot accommodate the learner enrolment and thus learners must be split for everyone to be able to use the resources at different times. Its things like these that just make teaching and learning so difficult.' 'There is a limited number of ablutions, meaning some blocks have ablutions and others do not. This ends up damaging the ablutions that are available, and because of the enrolment number, they are going to be damaged. Now the only way to control that ablutions do not get further damaged is by locking them.' 'Infrastructure alone controls a lot of things. ' Me: Yeah true. Informant 1: 'There are no outdoor break spaces for learners to relax at break times, instead they spend their break in the classrooms. There are no seating areas, besides the one in front of the school hall. ' Me: 'Do learners spend their break there?' Informant1: 'No, and it is not big enough to accommodate all the learners. And that seating area does not have taps and ablutions.' 'The sporting facilities are dilapidated, and some are not functioning.' All the above challenges end up being barriers to the learning experience.

Interview Schedule B, Informant 2

Questions	**Answers**
What learning process does the school function with? Behaviourist or Constructivist?	Informant 2: 'Learners are not in control of their learning because they lack resources for their discovery in learning.'
How do learners respond to the learning process of the school?	Informant 2: 'Learner performance, unfortunately, depends on the social issues within the peri-urban area. This also creates distractions for other learners to absorb knowledge learned.'

What other learning spaces are there besides conventional classrooms?	Informant 2: 'The dining hall is also used for dramatic arts and music subjects' Me: 'So the hall ends up being a multipurpose space?' Informant 2: 'Yes, there should be a dramatic arts studio that has an open space but because there isn't, the hall then becomes of use.'
Are there spaces that the school envisions to have that are currently not within the school?	Informant 2: 'Learners with special needs are not identified at an early stage within their high school career which is of no benefit to them. We must identify them at lower schooling levels so that they can be placed in the most beneficial and appropriate learning environments for them. See, there is a learner who cannot see well so he cannot read and write. The problem is parents do not come forward and the learner is not ours. If we try intervening, we get rejected. How do we solve the problem? Parents may not be able to identify soon enough as well or don't realize the importance'
What learning barriers do learners encounter?	Informant 2: 'There is no focus on field trips, therefore, curriculum learning is disconnected to practical working environments, such as the instance of KwaMnyandu Mall being built in front of the learners and the learners not being able to witness and visualize their learnings in the school to be able to understand better the knowledge they learn. A whole mall was built in front of the learners' eyes and was not a part of the experience; seeing the concrete being poured and cranes in action. That was such a valuable part of their learning that they could have been a part of, but higher structures do not care to enhance the learning experience. ' 'Instead, all is done is saving money. For what? We as educators do not know because our needs and learners' needs are not met. High budgets are allocated to the school as we hear in meetings with our superiors, but we do not see where it goes. Hence, they struggle to visualize and apply the knowledge learned in school. This creates a disconnection between curriculum and practical working environment, causing a challenge' 'The library of the school is not functioning as it is designed and intended for. Discussion rooms are used as office spaces for staff who were not allocated offices. There is a qualified librarian however he/she is placed away from the entrance, and the design of the space is too open to control who comes in and goes out. You saw where the library is?' Me: 'Yes' Informant 2: 'And you saw how it looks inside?'

	Me: 'Yes' Informant 1: You can see that there is no control of accessibility; how people come in and go out. We proposed a student card system for the learners who want to take out books, but the learners lose their cards too frequently so that ended up not working. Therefore, library material that is meant to stay in the library ends up being stolen, like newspapers. We get delivered newspapers regularly. This shows that accessibility is not controlled. And the people who occupy the discussion rooms as offices do not want to vacate' Me: 'That does not make it a library space anymore; it has turned to something else' Informant 2: Yes, so those are our challenges. And you should make sure that you propose a library space that has good accessibility because new books that come in are unstamped and they go straight to the storeroom. That space needs to be secured and safe. Where have you heard that anyone can have access to a storeroom for safekeeping? Never been done before. And you must note that there are learner boarders who live within the school who need library material but because the library is locked at certain times, because of the staff in the discussion rooms who wish to not vacate want the library main door locked, learners suffer and gain no access to the library material. The staff who do not want to vacate those spaces chase the learners out when they make a noise and there was Wi-Fi there with a wall-mounted television. All of that is gone and the learners suffer. There was a time where the learners were utilizing the library even with the challenge of accessibility' Informant 2 'Another challenge is because of the high learner enrolment; learners end up being taught in the dining hall to be able to accommodate the high level of learners to be taught. I want to recall; I think it was 2004 or around there. I was admitted to the hospital for two weeks because of my throat. I was trying to speak at the top of my voice and control 144 learners. 144. I will never forget. A dining hall to be used now as a classroom is another story where a notice board now must convert as teaching material. As a result, this high learner enrolment ends up affecting me as an educator; it has resulted in being admitted to a hospital.' Me: 'Wow, that is so strenuous.' Informant 2: 'Very strenuous. And I fell sick for real.'

6.6 CONCLUSION

It is evident that the fieldwork findings discussed above are appropriate and are thus applied in the architectural design of the proposed learning environment because they demonstrate the abovementioned theoretical discourse and reflect transformative learning spaces that are a responsive architecture that cultivates a culture of learning.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

The purpose of this chapter is to outline the conclusions reached in terms of the intended aims of this dissertation, present viable recommendations, and suggested design findings and guidelines. These are anticipated to highlight avenues of further research necessary in this field of study. It is essential to revisit the hypothesis:

'The study examines the influence learning processes will have on built form through understanding learning processes towards transformative learning spaces that are culturally relevant within decolonial urban contexts.'

The information gathered throughout the research study provided key insights into learning processes and is important in understanding the objectives of the research study.

7.2 SUMMARY OF STUDY

The study examined the influence learning processes will have on built form through understanding learning processes towards transformative learning spaces that are culturally relevant within decolonial urban contexts. The theoretical information gained supports the initial hypothesis posed. By understanding learning processes and keeping in mind the area of study is a decolonial urban context, therefore learning processes are needed to connect to cultural relevance and this is how learning processes influenced built form according to the research study, towards transformative learning spaces.

The research study understands that the learning processes in decolonial urban contexts are behaviourist approach to learning and are practiced instructed arrangements in seating within modular standardized and independent spaces within a larger structure where the objective is attaining knowledge from an educator. This is a learning process that the decolonial urban context cannot relate to as there is no cultural relevance. A learner inclusive learning approach is seen as appropriate because it allows versatility and can integrate cultural relevance.

The arrangement of space, organization of space, shape of space and form of space of isiZulu ethnic traditional architecture is proven by the research study to be an appropriate integration of cultural relevance into learning spaces in the area of study as a relationship between built form and its users through culture.

The constructivist learning approach in learning processes gives learners control of their learning thus allowing learning spaces to develop and evolve towards a liberated and learner-focused environment through theoretical application into practice. African philosophy in education supports counter-hegemonic discourse which means education in South Africa needs to integrate the philosophies of Africans, which will create a decolonized methodology to education. The following section will elaborate on such an environment for learning described above.

7.3 SUGGESTED DESIGN FINDINGS AND GUIDELINES

The suggested design findings are a theoretical application within the design of learning environments which include the theoretical discourse discussed in the research study. The theoretical discourse discussed are learning theories

including threshold learning concept, experiential learning, and problem-based learning; as well as architectural theories including the concept of culture and tradition, placemaking concept, and environmental psychology.

The research study questioned how learning processes can influence the design of learning spaces and further probed what learning processes are. The response to these is the Threshold Learning Concept which is the main concept of the architectural design which is described as liminal space. This represents a transitional learning from the pre-liminal stage, liminal stage, and post-liminal which is graphically expressed as a 'tunnel metaphor' where partial understanding is gradually clarified by the influence of more knowledge when motivates that access to knowledge is key to alleviating poor academic performance.

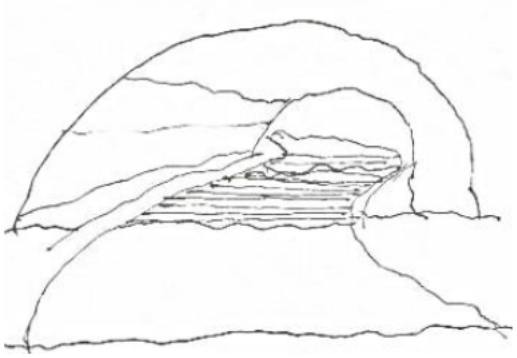


Figure 7.3i: Figure showing tunnel metaphor graphic expression (Source: By Author)

Therefore, it is envisioned that the architectural design will express the tunnel metaphor by a transition through the architecture from one place to another to acquire knowledge and where partial understanding is gradually clarified, similar to going through darkness of a tunnel and finding the light at the end of the tunnel. Clarity of confusion and understanding should be achieved by a transition through the learning spaces of the architecture.

The first design guideline derived from this is to **design for a transition of spaces for learning that link/connect to one another.**

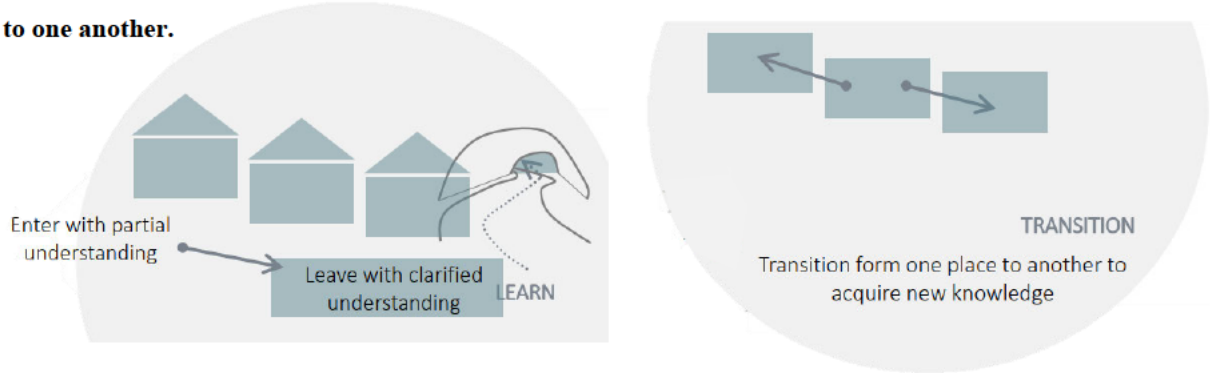


Figure 7.3ii: Figure showing design guideline (Source: By Author)

Experiential learning includes grasping, gathering, transforming, and processing information which is learning styles that are focused on the individual and encourage self-reflection. Problem-based learning, which involves vital integration between environmental and social factors as well as individual internalization for effective learning to occur. Learning is defined by a learner's own goals which are influenced by personal feelings, opinions, attitudes, and beliefs and are facilitated through problem-solving in groups that encourage meaningful tasks through

experience. Life experiences and culture within the broader social environment context become intrinsic in establishing an understanding and creating meaning within a problem-based learning paradigm.

The second design guideline derived from this is to **design for variety of learning styles which is informed by constructivist learning pedagogy approach**. This informs a variety of learning spaces, as discussed in precedents and the case study above. (Informal spaces such as collaborative and individual learning spaces, formal spaces such as auditoriums and seminar rooms, outdoor experimental learning spaces etc, technology learning spaces such as media centres, workshop spaces such as building and construction workshop learning spaces, etc.)

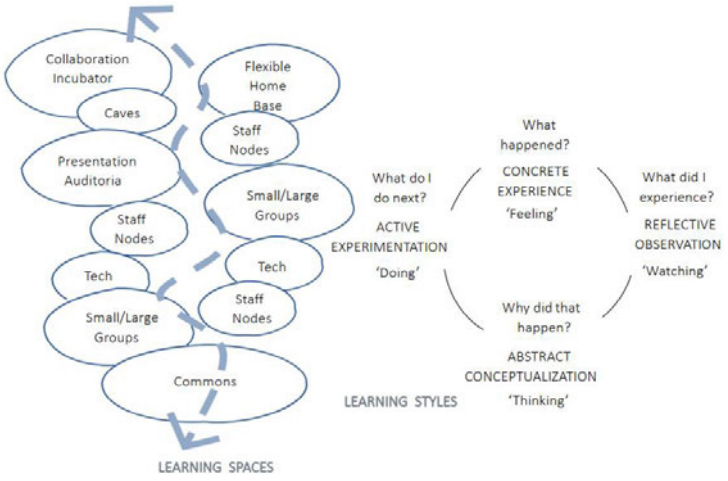


Figure 7.3iii: Figure showing design guideline (Source: By Author)

Environmental psychology takes into consideration the learning theories to be able to design according to the design principles discussed below for the intended effect of the architecture on its users. The learning theories are not a linear process, but reflective and cyclic. Design principles with reflective and cyclic in nature arrangement of learning space are vital. The random arrangement of learning spaces creates an irregular flow of space which has an unrestrictive effect on the mind. This stimulates the mind for creativity, thinking, and reflection.

Environmental psychology also refers to other design principles such as the admission of natural features inside the built environment for the building to not be perceived as a restrictive environment which is crucial. For effective problem-based learning, problems must be presented in their entirety with an open-ended and inquisitive nature to result in a range of solutions that would require social interaction for appropriate answers. Therefore, it is, for this reason, that design principles for a learning environment to facilitate problem-based learning need to include spaces that open to a range of other spaces.

The third design guideline derived from this is **tranquil spaces for reflective learning spaces**. The fourth design guideline is **admission of natural features inside the built environment**.

This information was appropriate in the research study to be used as learning theories for the response to difficulty learners face in learning environments of decolonial urban contexts due to existing societal issues. The research study suggests that these learning theories be implemented in the design of learning environments as a mechanism to

transform learning environments towards a responsive architecture that can, not only cultivate a culture of learning but also can expose and encourage that in anything they choose to pursue in life, to not be limited by their surroundings.

The research study then probed what learning spaces in decolonial urban contexts are. The response to this was that learning environments in decolonial urban contexts reflect that learners experience difficulties in understanding concepts or ideas learned in learning environments due to the negative effects that social issues have on their learning capabilities, this is according to Informant 1 of the Interview Schedule B. The underprivileged background that they are exposed to daily is not inspiring and not motivating in cultivating a culture of learning. (Appendix II)

This is amongst other societal issues that they encounter. This leaves learners in a state of partial understanding, or in a state of 'liminality'; a suspended state of partial understanding, or 'stuck place', in which understanding may reflect lack of authenticity. This is not beneficial in creating innovative thinkers that can move the country forward. The research study aims for the creation of innovative thinkers that can move the country forward and proposes to achieve this through the proposed building.

The research study links what learning processes are to what learning spaces in decolonial urban contexts are and found the strategies mentioned above to contribute positively towards transforming learning spaces in decolonial urban contexts. This would encourage innovative thinkers that can move the country forward. Learning processes that are related to the practical world where their education will be required will need frequent access to guidance towards their aspiring careers. This is the vision for the proposed building. Learning environments need to move away from the ones created by colonizers who imposed their way of life in Africa. The way of life in Africa should reflect in the learning environments of Africa. These are ideals that learning environments in decolonial urban contexts need to transform towards.

The research study further probed how African learning processes can transform learning spaces. The response to this was first, the concept of culture which takes into consideration the physical environment characteristics and social environment characteristics to relate the proposed building to the area of study and its users. The concept of tradition takes into consideration social organization of space in isiZulu ethnic tribe, isiZulu ethnic oral tradition spaces as learning space, and isiZulu ethnic traditional homestead architecture.

The research study found this information imperative to the connection between learning environments and its users to cultivate a culture of learning because the existing learning environments were imposed on its users by colonizers thus eliminating a connection between learning environments and its users. These learning environments are also rigid, standardized, and regular, thus are uninspiring non-motivating spaces for learning.

The fifth design guideline derived from this is **reclaiming culture of learning through knowledge sharing spaces with a central oral tradition cultural learning space influence.** This is envisioned to be expressed by the sixth design guideline which is clustered organization of space for interlocking spaces to have a shared/common space which is the central courtyard, the centre of the building.

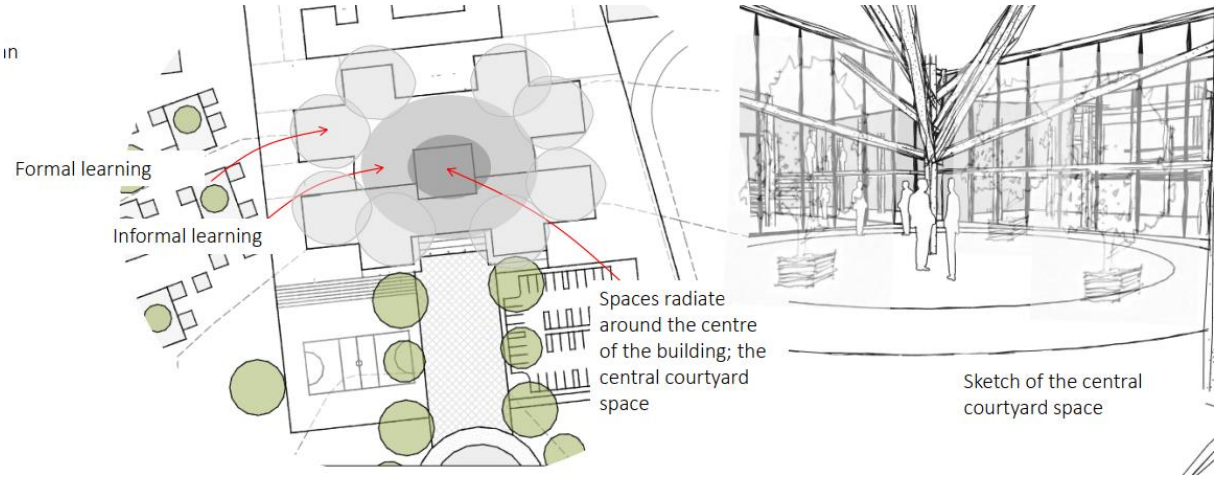


Figure 7.3iv: Figure showing design guideline (Source: By Author)

The seventh design guideline is **radial organization of space** for the transition through the building to be accessed from the centre of the building radiate outwards; where from the centre are informal learning spaces and outwards are formal learning spaces for culture core principles.

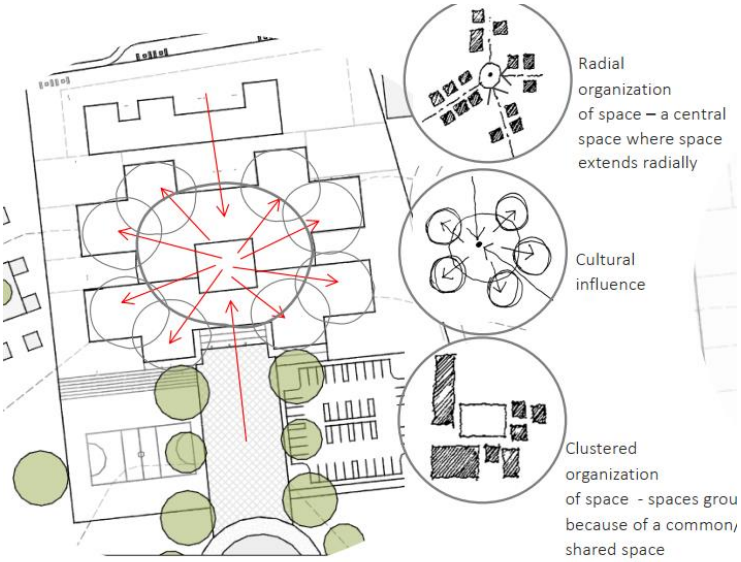


Figure 7.3v: Figure showing design guideline (Source: By Author)

The eighth design guideline is **interlocking spatial relationships** for culture core principles.

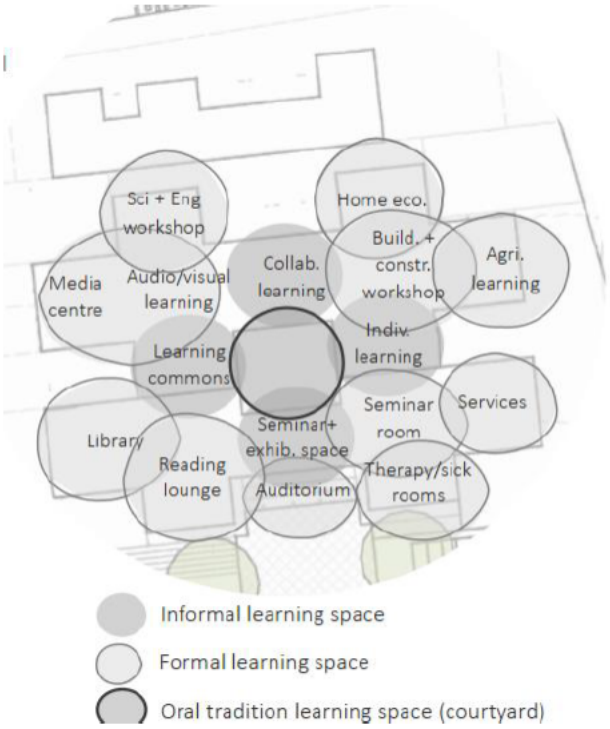


Figure 7.3vi: Figure showing design guideline (Source: By Author)

The nineth design guideline is **contextual influences.**

Placemaking focusses on the sociability quality of public space. Since the main concept of the research study is threshold concept, interaction is vital in collaborative learning as well as in the behaviourist learning approach and thus placemaking is an appropriate concept to express the main concept of the research study. The research study acknowledges that creating a sense of ownership is vital for the peri urban area because it is a community with a large youth population. Thus, they need to have a space they can claim as their own. Placemaking concept is appropriate for this because it comprises principles aimed for communities which means it is people-centred and capitalizes on local community assets, inspiration, potential and results in people's well-being and happiness.

The tenth design guideline is space with a **sense of ownership and that is people-centred.**

The abovementioned design guidelines are listed below:

- a transition of spaces for learning that link/connect to one another
- variety of learning styles informing variety of learning spaces
- tranquil spaces for reflective learning
- admission of natural features inside the built environment.
- central oral tradition cultural learning space influence
- clustered organization of space
- radial organization of space
- interlocking spatial relationships
- contextual influences.
- sense of ownership and that is people-centred.

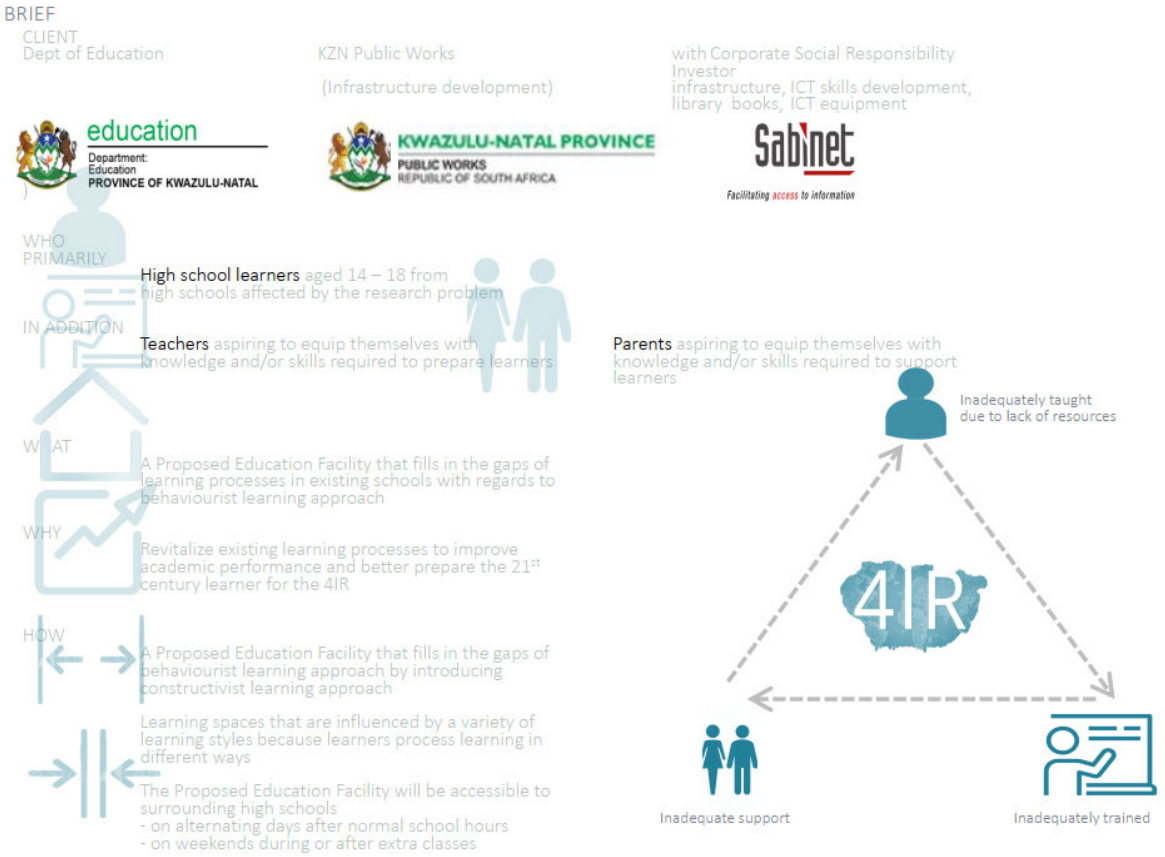
7.4 CONCLUSION

There is a great need for further research on the subject. The study has shown that there is not enough regard for learning processes and learner experience in education. There has been a growing phenomenon on the connection between learning processes and participatory experience and the research study encourages the phenomenon to become a norm for learning environments because this learning approach has a significant effect on learner experience and learner outcomes. It is also recommended that architectural practitioners bear in mind the importance of transformative learning spaces with consideration to conceptual and theoretical built environment design. This would assist practitioners in creating more holistic environments that leave the user with a positive learner experience.

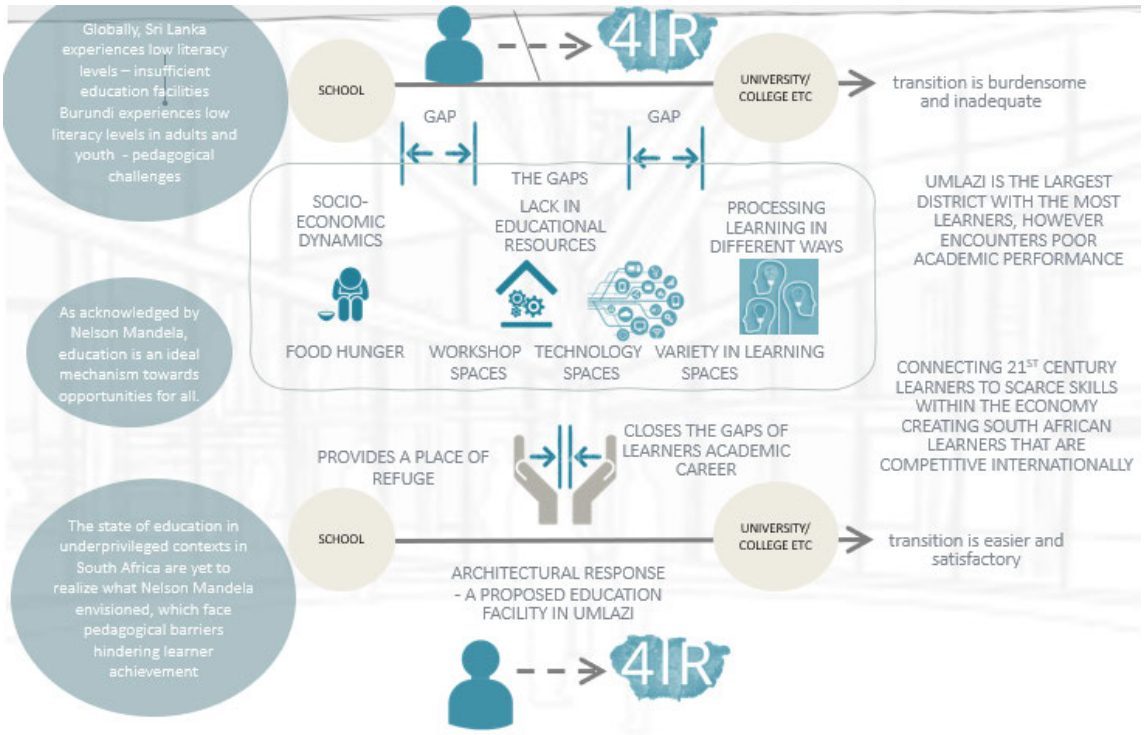
The Department of Basic Education identified imbalances concerning core elements of educational resources. Be that as it may, the research study has concluded according to informants of interview schedule B (Appendix II) that as much as Planning for Public School Infrastructure has been provided for by the government, the architectural planning lacks provision and maintenance of educational resources in response to socio-economic issues within the decolonial urban contexts that learners reside in. Where practitioners in existing learning environments in decolonial urban contexts identify issues with learners that impede their learning, which has been elaborated in the interview schedules, there is no support on how to deal with such, which is unfortunate.

In conclusion, the research study appeals to architectural practitioners to keep in consideration the factors discussed in the research study for the implementation of psychological, educational support as well as better access to information through technological innovations, providing and enhancing infrastructures for the provision of information and educational public informative gatherings for the transfer of pertinent and relevant knowledge. These are to be taken into consideration concerning the architectural design of learning environments in decolonial urban contexts. The research study appeals to these as being crucial for transformative learning environments to be able to create innovative thinkers that can move the country forward.

7.5 CLIENT BRIEF AND REQUIREMENTS



7.6 BUILDING TYPOLOGY



7.7 SCHEDULE OF ACCOMODATION

ACCOMODATION SCHEDULE

LOWER GROUND FLOOR (ADMIN)	
Storage	55sqm
Print room	10sqm
Staff open plan office	157sqm
Human resources office	57sqm
Finance office	44sqm
Admin office	80sqm
Facilities manager office	153sqm
Staff kitchen	28sqm
Reception/foyer	85sqm
Public/staff ablutions	30sqm
Conference meeting room	35sqm
Meeting room	25sqm
Meeting room	25sqm
Services core	100sqm
Storage	57sqm
Mechanical room	59sqm

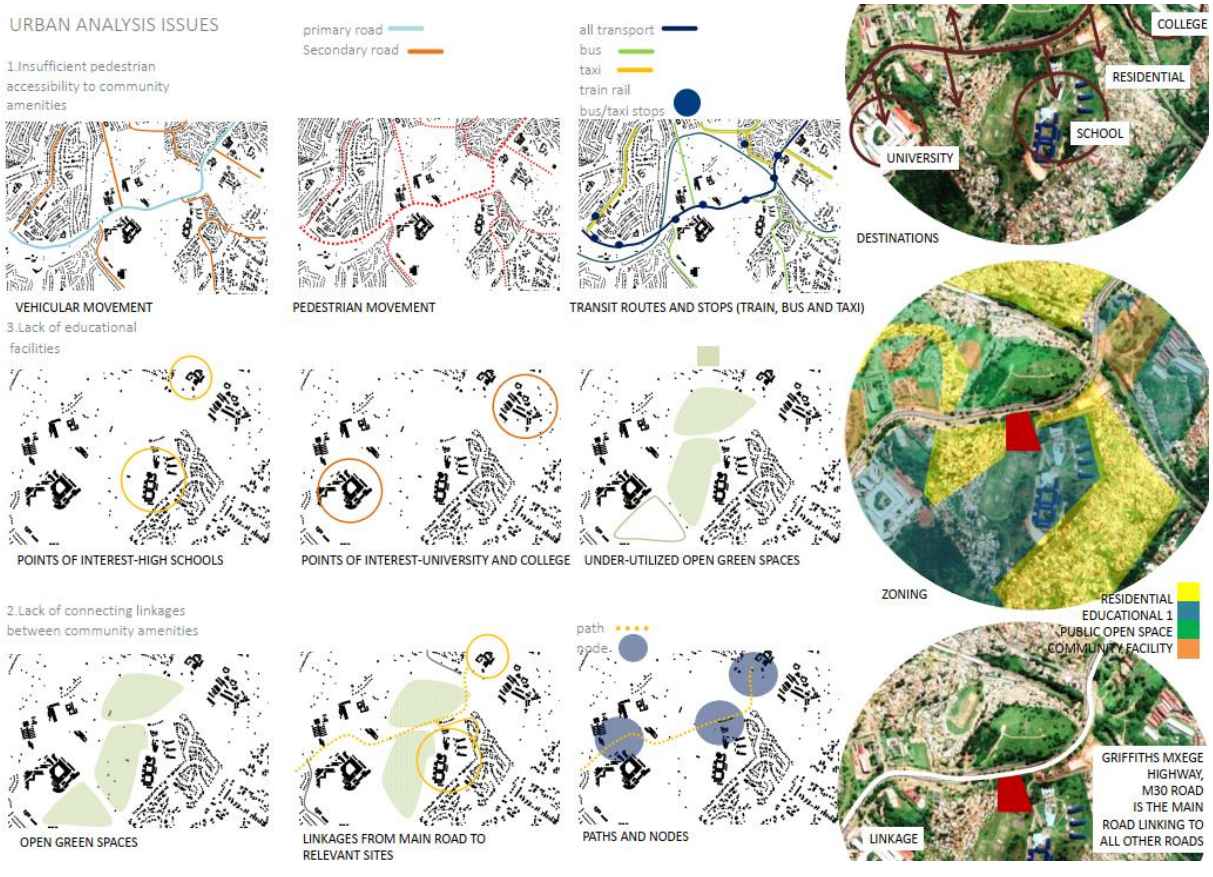
GROUND FLOOR (EDUCATIONAL, MEDIA ETC)	
Science and engineering workshop	145sqm
Audio and visual learning	61sqm
Public ablutions	55sqm
Media center	144sqm
3D printing space	72sqm
Learning commons area	305sqm
Collaborative learning area	342sqm
Home economics	332sqm
Building and construction workshop	153sqm
Agriculture learning storage	209sqm
Individual study learning	355sqm
Library	215sqn
Reading lounge	95sqm
Reading/study lounge	158sqm
Reception/foyer	75sqm
Public ablutions	34sqm
Seminar and exhibition multipurpose space	125sqm
Auditorium	190sqm
Seminar room	153sqm
Sick bays	53sqm
Therapy rooms	66sqm
Mechanical room	52sqm
Services core	108sqm
Storage	104sqm
Reading and study garden	285sqm

MEZZANINE FLOOR	
Public ablutions	57sqm
Seminar and exhibition multipurpose space	274sqm
Learning commons	222sqm
Café	207sqm

FIRST FLOOR (RETAIL)	
Gym	131sqm
Smoothie/health juice bar	26sqm
Internet café	134sqm
Print shop	33sq
Security	54sqm
Bakery	34sqm
Café	135sqm

7.8 CRITERIA FOR SITE SELECTION

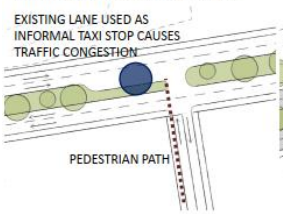
7.9 FINAL DESIGN PROPOSAL



URBAN ANALYSIS OPPORTUNITIES

ISSUES

1.Insufficient pedestrian accessibility to community amenities



SUGGESSTIONS

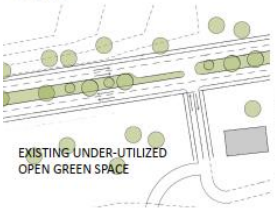
-Extend existing bus/taxi stops
-New bus/taxi stops
-Traffic calming

OPPORTUNITIES

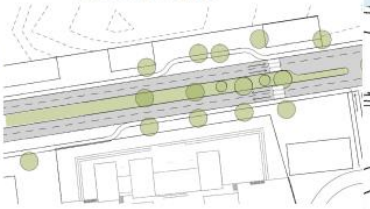
ACCESSIBILITY

-Ease vehicular congestion making better the accessibility to the educational facility

3.Lack of educational and sport facilities



-Proposed educational facilities
-Proposed sport facilities



COMMUNITY AND ECONOMIC BENEFIT

-Provision of educational resources to improve learners academic performance
-ensuring accessibility into tertiary institutions and employment
-Involve parents for awareness and support
-Involve teachers to improve their skills in technology for variety in learning styles

2.Lack of connecting linkages between community amenities

-Enhance connection linkages between community amenities
-Provide pedestrian friendly streets

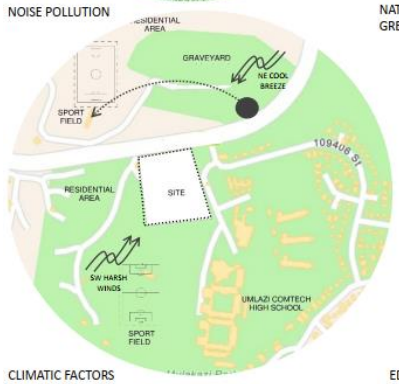
SOCIAL BENEFIT

-Safer environment for learners traveling by foot
-Environmental image is enhanced due to connection in linkages

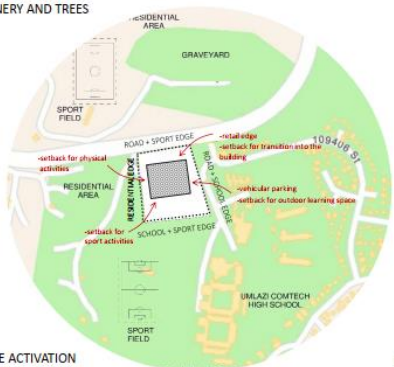
NOISE POLLUTION

NATURAL FEATURES – GREENERY AND TREES

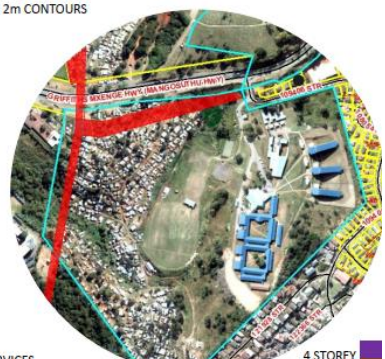
TOPOGRAPHY – 2m CONTOURS



CLIMATIC FACTORS

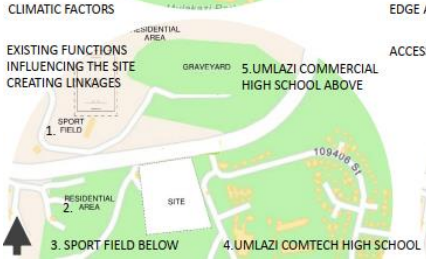


EDGE ACTIVATION



SERVICES

EXISTING FUNCTIONS INFLUENCING THE SITE CREATING LINKAGES



ACCESSIBILITY

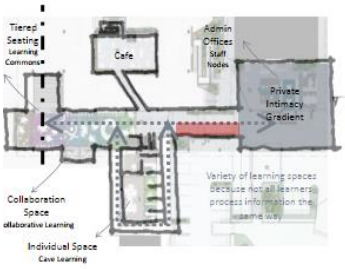
BUILDING HEIGHTS

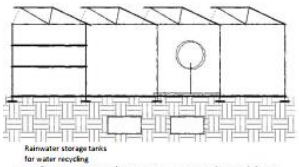
PRECEDENT STUDIES

CASE STUDY

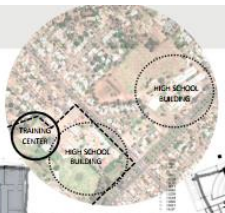
1. Key pedagogical barriers hindering learner achievement.

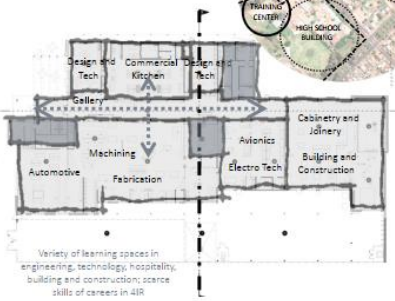
Northern Beaches Christian School, Australia by WMK Architecture



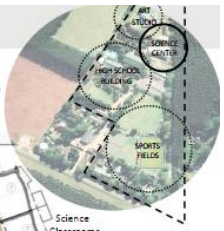


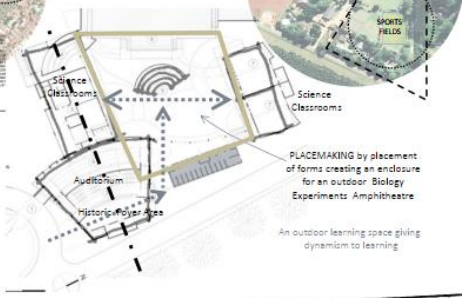
Deakin Trade Training Centre , Australia by Y2 Architecture

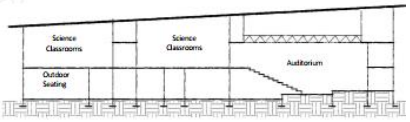




Grantleigh Science Center, Richards Bay by TJ Architects







Justification in relation to research problem

Variety of learning styles

Variety of learning styles, Linkages to schools

Linkages to schools, Easily accessible, Exposure to natural elements for sensory architecture

Graphic analysis showing response to research problem

Connecting spatial relationships.
Multi-level volumes for visual connection of space; for collaborative learning

The design of learning spaces influenced by attaining knowledge and skills to better prepare learners for 4IR

Accessibility to educational resources alleviating pedagogical barriers
Learning outdoors gives a dynamic experience to learning

Key findings informing design principles

Constructivist learning pedagogy approach

Constructivist learning pedagogy approach

Constructivist learning pedagogy approach

Circulation

Open plan circulation in colleboration space
Wrap around circulation around individual space

Spaces accessed by central gallery space

The science center is located within the site of the school building because it is funded by the school.
Spaces are accessed from the enclosure space/courtyard

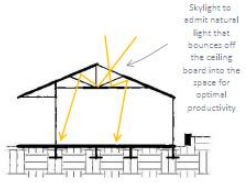
Spatial relationships

Social spaces are fragmented from building and connected to outdoors.
Offices fragmented from building for privacy

Spaces organized according to function of space

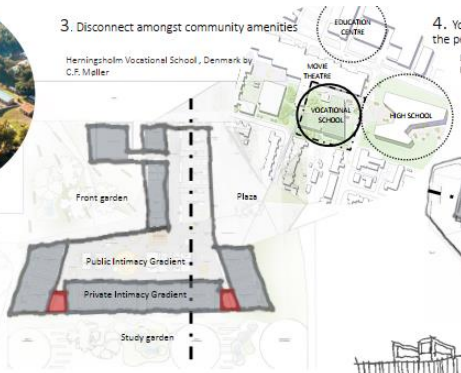
Public to private spaces going up the building.
Historic timeline on the ceiling shows creative use of space for learning

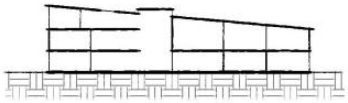
2. Lack of exposure to natural light in existing school buildings and lack of green spaces to engage in physical activity



3. Disconnect amongst community amenities

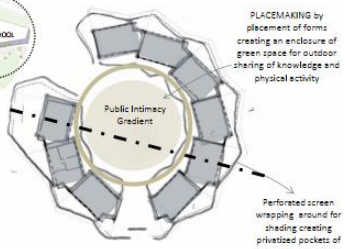
Herningsholm Vocational School , Denmark by C.F. Moller

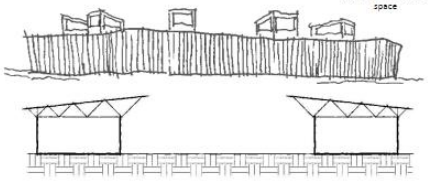




4. Youth disconnect to cultural relevance due to lifestyle in the peri-urban area

Lycee Schorge Secondary School, Burkina Faso by Kere Architecture





Justification in relation to research problem

Exposure to natural elements for sensory architecture, Exposure to north orientation

Linkages to schools

Exposure to natural elements for sensory architecture, Exposure to north orientation

Graphic analysis showing response to research problem

Admission of natural light for optimal productivity, concentration and dynamic spatial experience

Outdoor learning spaces; study garden , front garden, plaza as connections between surrounding buildings create linkages

Encourage culture of learning through gathering spaces for haring knowledge; an influence from oral tradition learning space

Key findings informing design principles

Contextual influences

Contextual influences

Culture core principles, Reclaiming culture of learning through knowledge sharing spaces as hierarchy of space

Circulation

Spaces are arranged outward along a curvilinear element for natural lighting penetrate the building

Transition of space from the center of the building is public to private

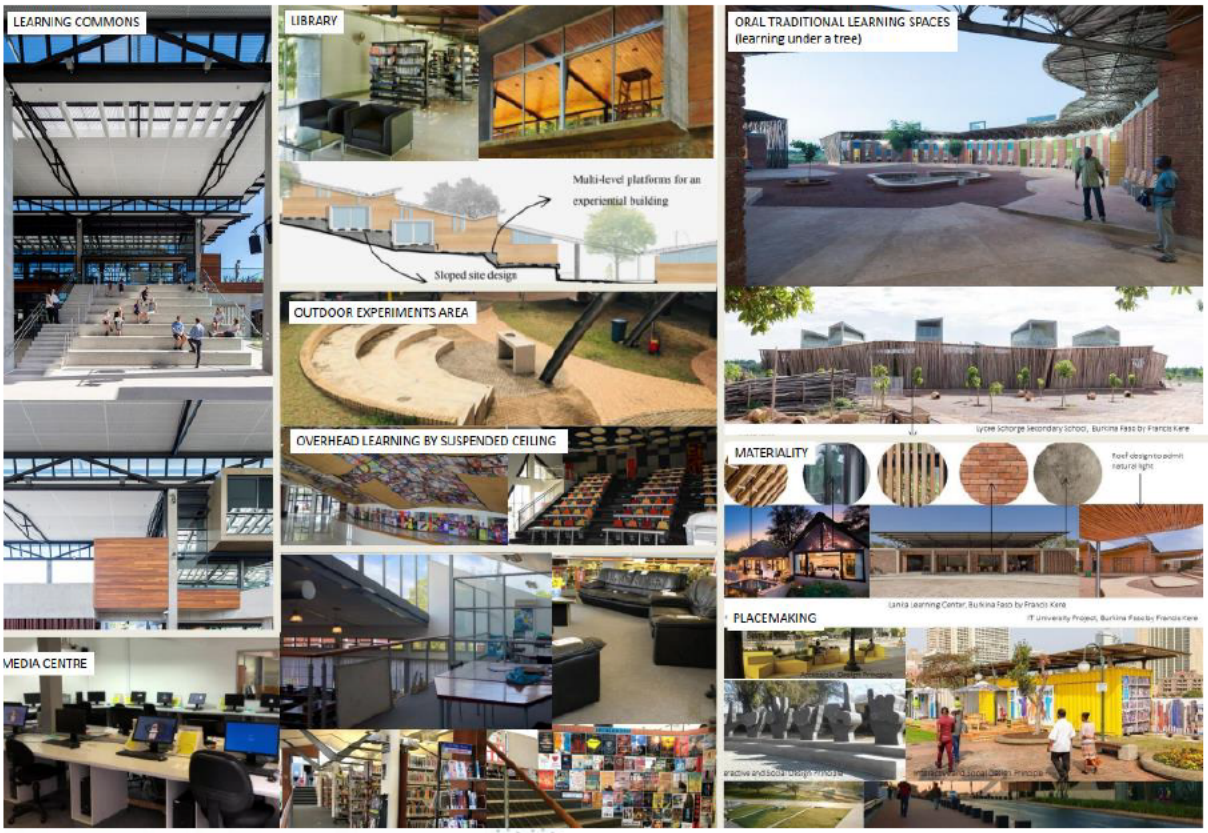
Radial organization of space creating a central courtyard for self-expression, sharing of to experiences, social connections, mentoring sessions, career expos etc

Spatial relationships

Enclosures creating courtyard spaces as outdoor spaces for physical activity

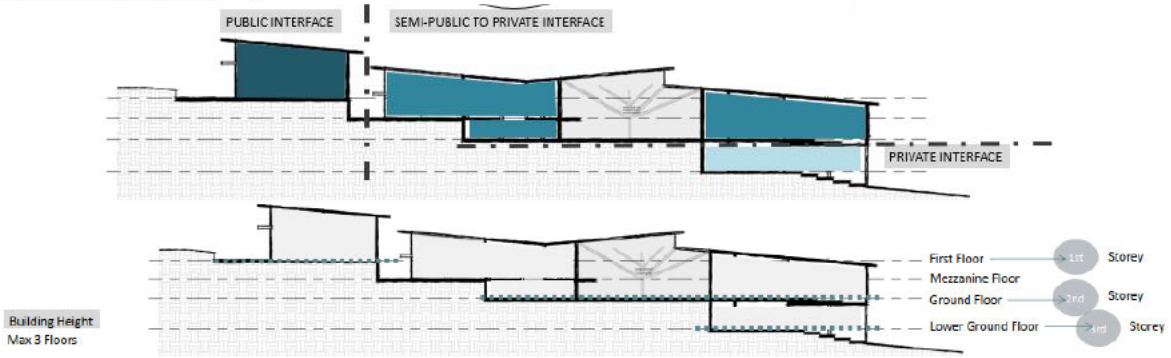
Spaces organized according to function of space

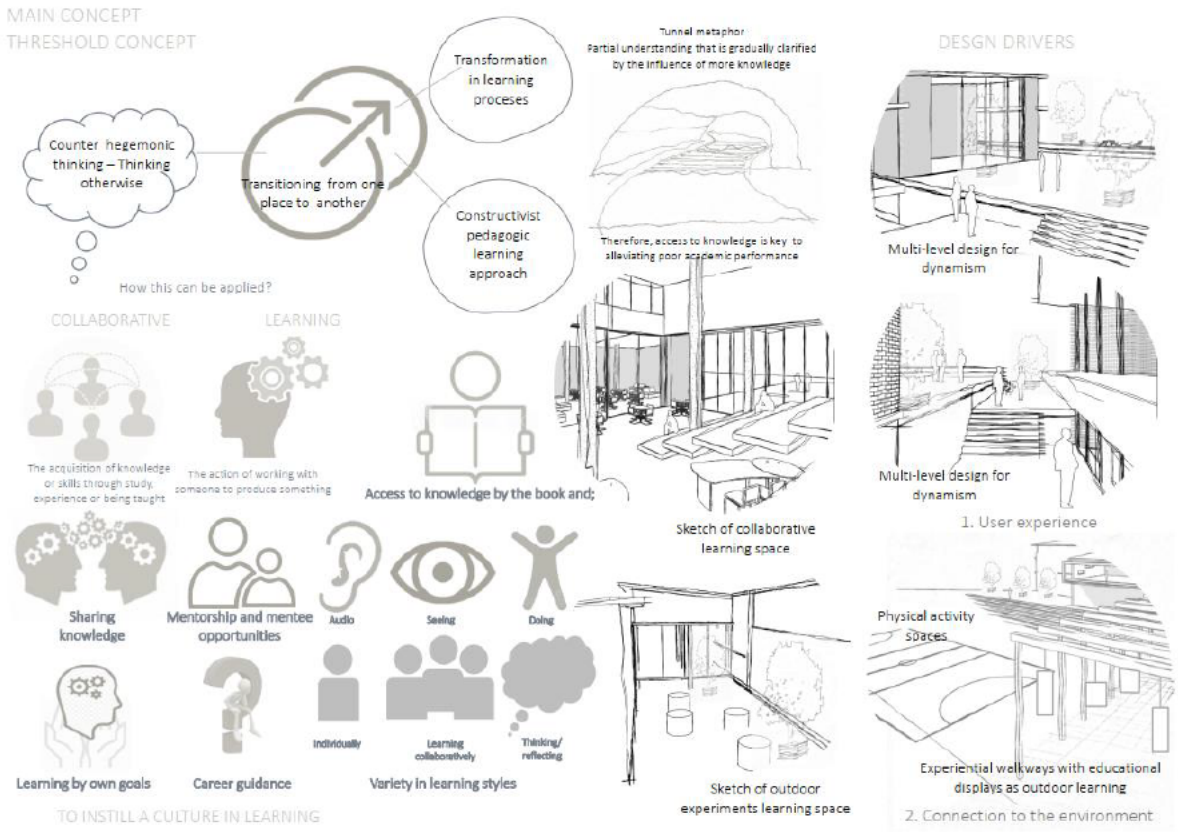
Radial organization of space
Perforated screen wrapping around the built form creating intimacy gradient


LEARNING COMMONS
LIBRARY
Multi-level platforms for an experiential building
Sloped site design
ORAL TRADITIONAL LEARNING SPACES (learning under a tree)
OUTDOOR EXPERIMENTS AREA
OVERHEAD LEARNING BY SUSPENDED CEILING
MATERIALITY
PLACEMAKING
MEDIA CENTRE

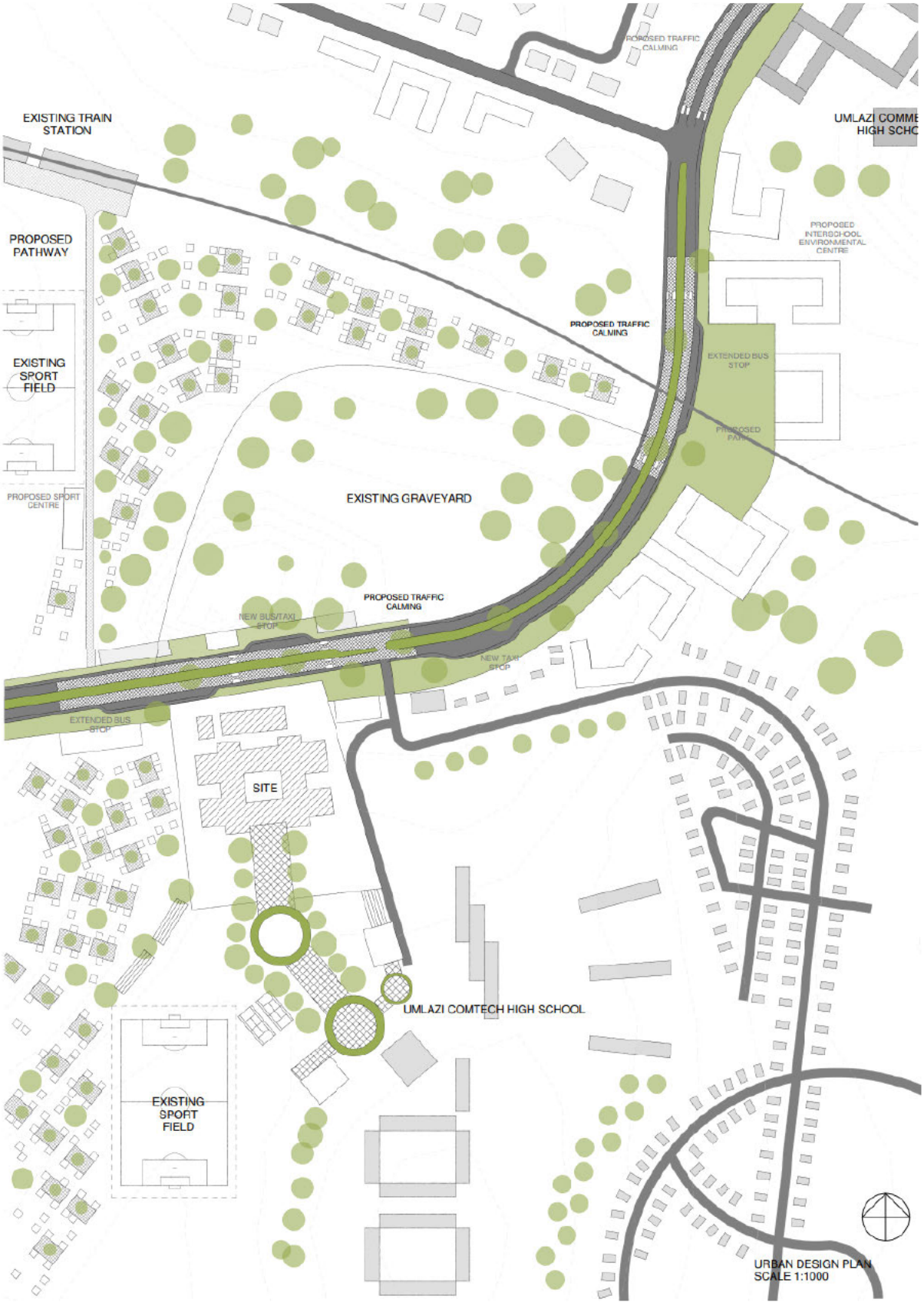
as learners' transition from high school to tertiary/college,
they can transition with the proposed intervention that fills the gap
TRAIN STATION
RESIDENTIAL AREA
SPORT FIELD
UMLAZI COMMERCIAL HIGH SCHOOL
UMLAZI COMTECH HIGH SCHOOL

RETAIL
EDU, MEDIA, STEM, MEDICAL
ADMIN
SPORT

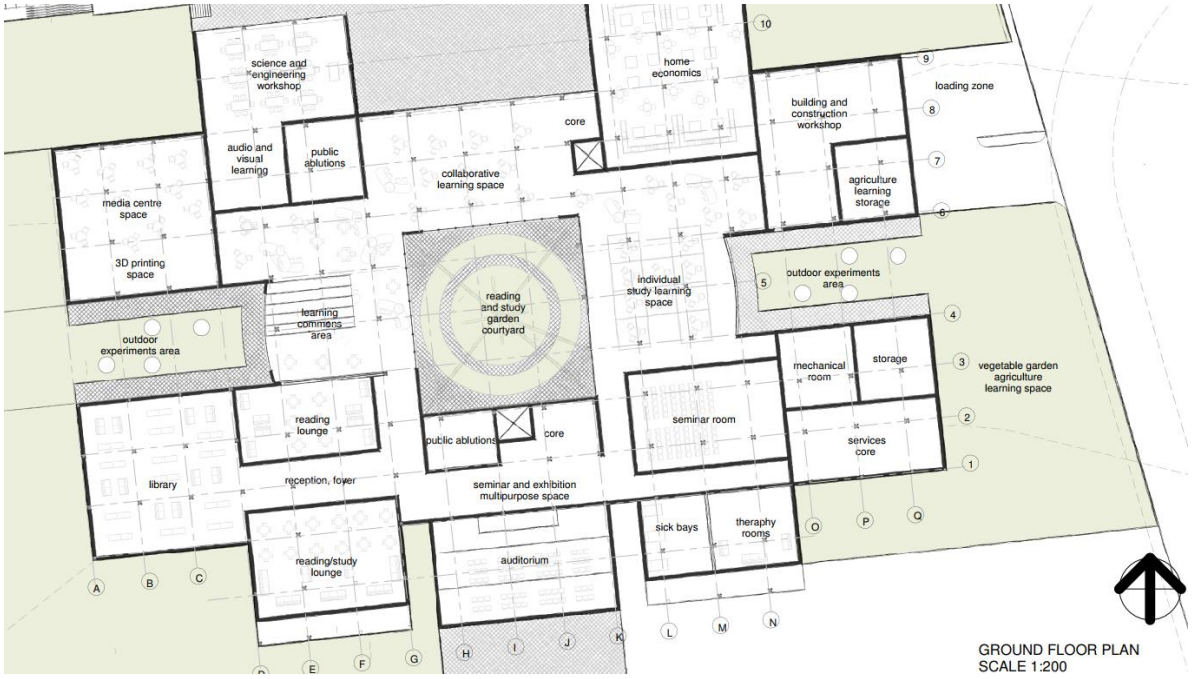

PUBLIC INTERFACE
SEMI-PUBLIC TO PRIVATE INTERFACE
PRIVATE INTERFACE
First Floor
Mezzanine Floor
Ground Floor
Lower Ground Floor
1st Storey
2nd Storey
3rd Storey
Building Height
Max 3 Floors


MAIN CONCEPT
THRESHOLD CONCEPT
Transformation in learning proceses
Counter hegemonic thinking – Thinking otherwise
Transitioning from one place to another
Constructivist pedagogic learning approach
How this can be applied?
COLLABORATIVE
LEARNING
The acquisition of knowledge or skills through study, experience or being taught
The action of working with someone to produce something
Access to knowledge by the book and;
Sharing knowledge
Mentorship and mentee opportunities
Audio
Seeing
Doing
Learning by own goals
Career guidance
Individually
Learning collaboratively
Thinking/ reflecting
Variety in learning styles
TO INSTILL A CULTURE IN LEARNING
Tunnel metaphor
Partial understanding that is gradually clarified by the influence of more knowledge
Therefore, access to knowledge is key to alleviating poor academic performance
Sketch of collaborative learning space
Sketch of outdoor experiments learning space
DESGN DRIVERS
Multi-level design for dynamism
Multi-level design for dynamism
1. User experience
Physical activity Spaces
Experiential walkways with educational displays as outdoor learning
2. Connection to the environment

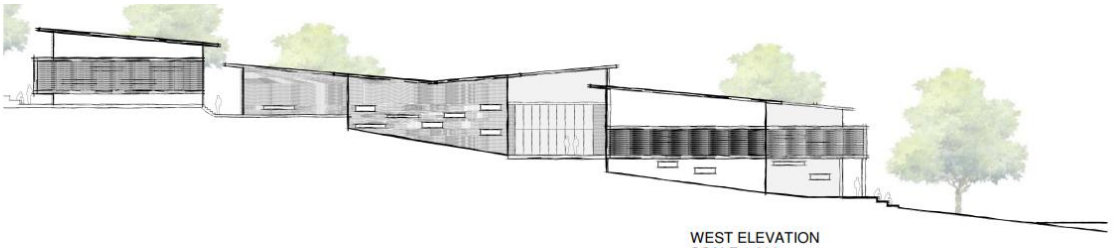
retail edge as -public interface -to buffer noise from busy main road
learning spaces are set back from busy main road
Buffer noise
pedestrians' access
vehicular access
Accessibility
outdoor learning
physical activity
Outdoors as learning and physical activity space
access and retail edge
physical activity and learning edge
access and learning edge
physical activity edge
Edge activation
Platforms
-7.7m building line
-16m building setback from boundary line
Services response


PROPOSED TRAFFIC CALMING
EXISTING TRAIN STATION
UMLAZI COMME HIGH SCHC
PROPOSED PATHWAY
PROPOSED INTERSCHOOL ENVIRONMENTAL CENTRE
PROPOSED TRAFFIC CALMING
EXISTING SPORT FIELD
EXTENDED BUS STOP
PROPOSED PAR
PROPOSED SPORT CENTRE
EXISTING GRAVEYARD
PROPOSED TRAFFIC CALMING
NEW BUS/TAXI STOP
NEW TAXI STOP
EXTENDED BUS STOP
SITE
UMLAZI COMTECH HIGH SCHOOL
EXISTING SPORT FIELD
URBAN DESIGN PLAN
SCALE 1:1000

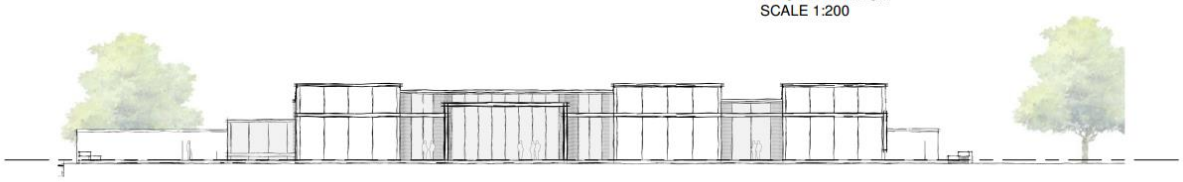
LOWER GROUND FLOOR
SCALE 1:500


science and engineering workshop
audio and visual learning
public ablutions
media centre space
3D printing space
outdoor experiments area
learning commons area
collaborative learning space
core
home economics
building and construction workshop
loading zone
agriculture learning storage
outdoor experiments area
reading and study garden courtyard
individual study learning space
mechanical room
storage
vegetable garden agriculture learning space
seminar room
services core
reading lounge
public ablutions
core
library
reception, foyer
seminar and exhibition multipurpose space
sick bays
theraphy rooms
reading/study lounge
auditorium
GROUND FLOOR PLAN
SCALE 1:200

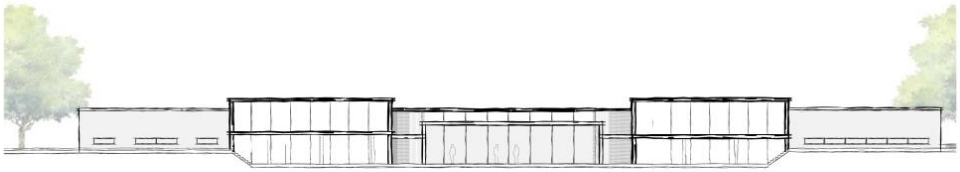
MEZZANINE FLOOR PLAN
SCALE 1:500
FIRST FLOOR PLAN
SCALE 1:500



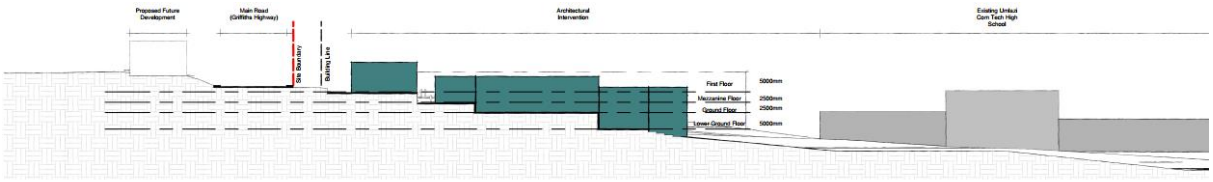
WEST ELEVATION
SCALE 1:200



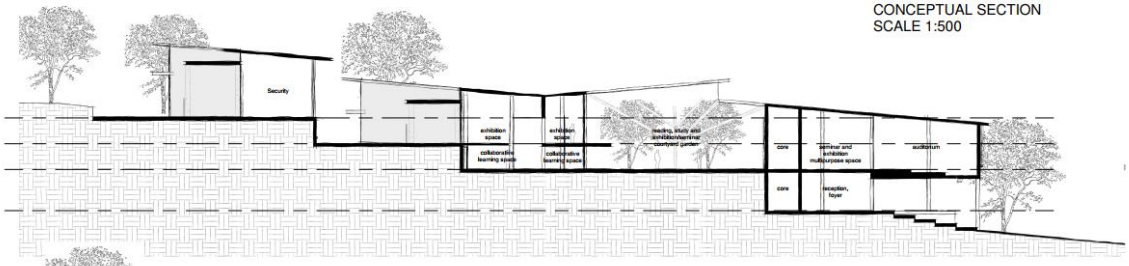
NORTH ELEVATION (main road entrance)
SCALE 1:200



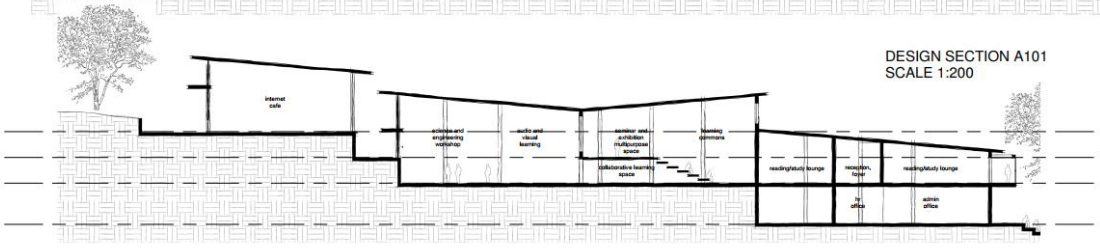
NORTH ELEVATION (experiential courtard entrance)
SCALE 1:200



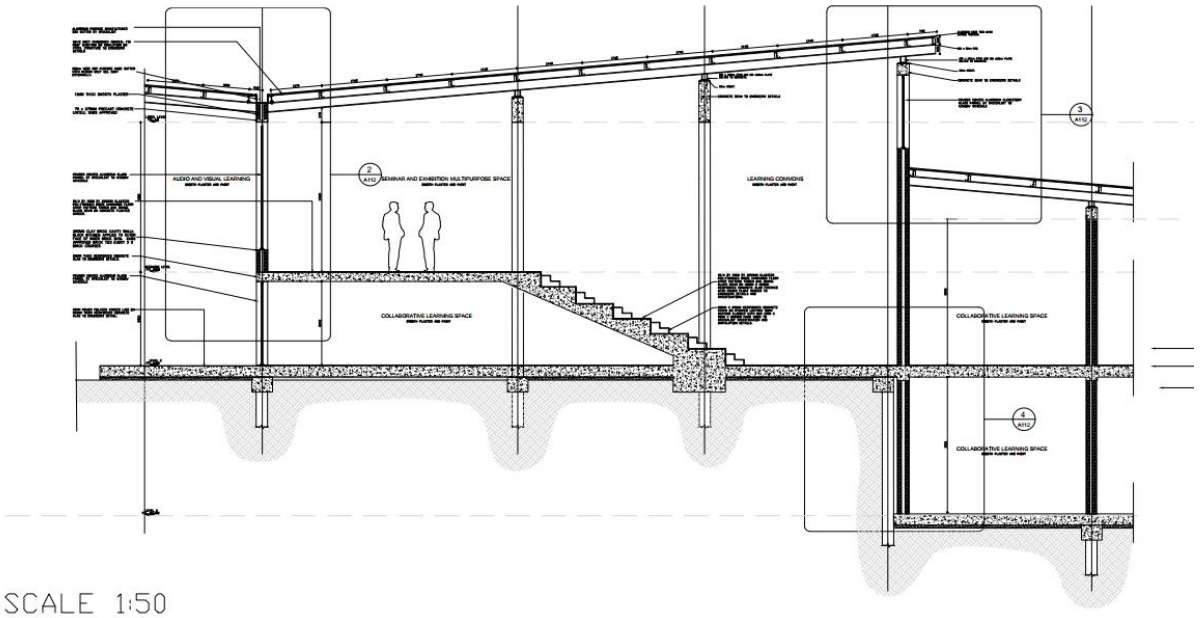
CONCEPTUAL SECTION
SCALE 1:500



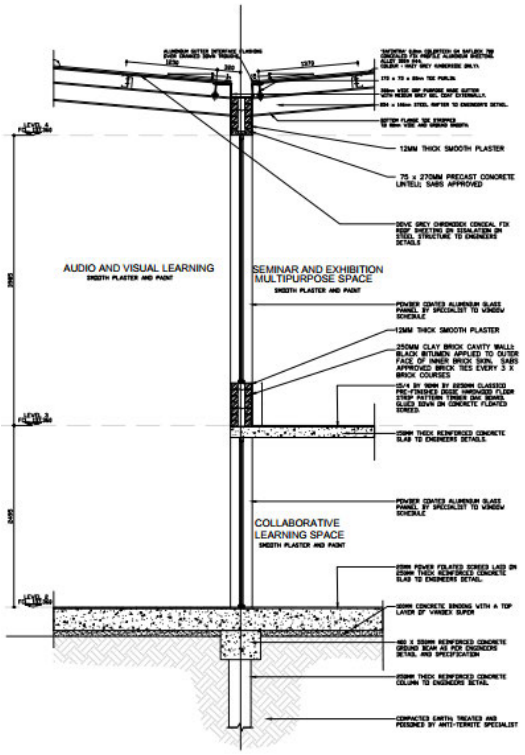
DESIGN SECTION A101
SCALE 1:200



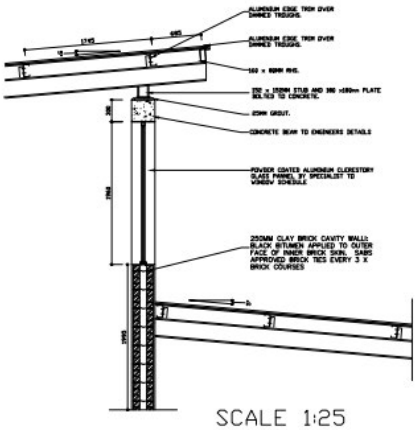
DESIGN SECTION A112
SCALE 1:200



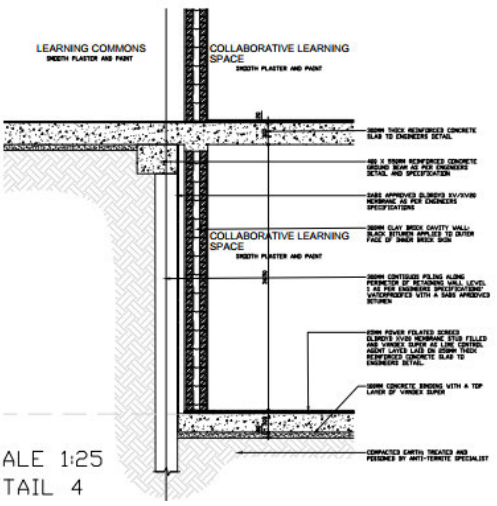
SCALE 1:50



SCALE 1:25
DETAIL 2



SCALE 1:25
DETAIL 3



SCALE 1:25
DETAIL 4

APPENDICES

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APPENDIX I

INTERVIEW SCHEDULE A, INFORMANT 1

This interview schedule aims to explore the possibility of generating transformative learning environments by revitalizing existing learning processes in townships. In doing so, this shall determine how learning processes can influence built form.

The data collected from this interview is appropriate for developing a theoretical outcome that the research study can learn from in seeking to promote a socially responsive architecture that encourages a culture of learning for better academic performance in high school learners.

Interview Schedule for: TJ Architects

Questions will be largely open ended. Follow up interviews will be conducted for clarity on the information provided

Interview Schedule

1. What are the intentions, design drivers and design principles of the building?

_____

_____

2. How does the building relate or respond to the location?

_____

_____

3. How do the learning processes encourage a culture of learning?

_____

_____

4. What learning processes influence the design of the building?

_____

_____

5. What societal challenges does the building address?

_____

_____

Date…….

Signature…….

Thank you for your time and co-operation

APPENDIX II

INTERVIEW SCHEDULE B, INFORMANT 1

This interview schedule aims to explore the possibility of generating transformative learning environments by revitalizing existing learning processes in townships. In doing so, this shall determine how learning processes can influence built form. The data collected from this interview is appropriate for developing a theoretical outcome that the research study can learn from in seeking to promote a socially responsive architecture that encourages a culture of learning for better academic performance in high school learners.

Interview Schedule for: Umlazi Comtech High School

Questions will be largely open ended. Follow up interviews will be conducted for clarity on the information provided

Interview Schedule

1. What learning process does the school function with? Behaviourist (do learners not have control of their learning) or Constructivist? (do learners have control of their learning)

_____

_____

2.How do learners respond to the learning process of the school?

_____

_____

3.What other learning spaces are there besides conventional classrooms?

_____

_____

4.Are there spaces that the school envisions to have that are currently not within the school?

_____

_____

Date…….

Signature…….

Thank you for your time and co-operation

APPENDIX II

INTERVIEW SCHEDULE B, INFORMANT 2

This interview schedule aims to explore the possibility of generating transformative learning environments by revitalizing existing learning processes in townships. In doing so, this shall determine how learning processes can influence built form. The data collected from this interview is appropriate for developing a theoretical outcome that the research study can learn from in seeking to promote a socially responsive architecture that encourages a culture of learning for better academic performance in high school learners.

Interview Schedule for: Umlazi Comtech High School

Questions will be largely open ended. Follow up interviews will be conducted for clarity on the information provided

Interview Schedule

1. What learning process does the school function with? Behaviourist (do learners not have control of their learning) or Constructivist? (do learners have control of their learning)

_____

_____

2.How do learners respond to the learning process of the school?

_____

_____

3.What other learning spaces are there besides conventional classrooms?

_____

_____

4.Are there spaces that the school envisions to have that are currently not within the school?

_____

_____

Date…….

Signature…….

Thank you for your time and co-operation

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