THE IMPACT OF EXPERIENTIAL LEARNING IN DESIGNING BUILDINGS FOR ADULT EDUCATION:

A Proposed Interactive Education and Training Centre in Durban

Faizal Randeree

Dissertation submitted to the School of Built Environment and Development Studies, University of KwaZulu-Natal, in partial-fulfilment of the requirements for the degree of Master in Architecture

Durban, 2014

ABSTRACT

Due to the urgency in overcoming the unemployment epidemic in South Africa, vocational training institutions are very rigid in their approaches, serving to educate and train learners with minimal learner involvement. Learners are seen more-so as passive recipients, rather than active participants in a built learning environment that is meant to emphasise on "activity". Hence, learners are not able to acquire the necessary tools towards a better life and employment opportunities.

On that note, the aim of the research is to gain an understanding of "experiential learning". The knowledge gained will be used to demonstrate a better understanding of how buildings for adult education should be designed. This will provide a new model for vocational training centres in South Africa, assisting in providing adult learners with the necessary tools for a better way of life and employment opportunities, not just for the present, but also for future growth, in a challenging socio-economic environment.

The ability for adult learners to be involved in instructionally-based education (theoretical and practical) is discussed; collaborative learning and social connections are discussed as well; followed by the ability to "experience" the built learning environment – being "meaningful" to the users.

Three theories have been identified, which all contribute to the research. The primary theory is an adult educational theory - "Experiential Learning Theory". This is followed by secondary theories - "Social Constructivism of Knowledge" and "Genius Loci". All of the theories are linked to their subsequent conceptual frameworks.

The research initially draws on published literature pertaining to the theories and concepts. The precedent studies follows, analysing four existing successful built environments located abroad, which relates to the theories and concepts, as well as principles derived from the literature review.

The study will eventually be located in KwaZulu-Natal, South Africa. It involves empirical research (observation and interviews), featuring two case studies within the suburban and township contexts, which are adult education and training centres.

The culmination of this research will be the development of a final theoretical framework, the development of a detailed design brief comprising of site selection and a schedule of accommodation, followed by a design concept and the design of an Education and Training Centre for adults in Durban.

DECLARATION
_____

I declare that this dissertation is my own, unaided work and carried out exclusively by me under the supervision of Mr Mthembeni Mkhize. It is being submitted for the degree of Master of Architecture in the University of KwaZulu-Natal. It has not been submitted before for any degree or examination in any other University.

_____

Faizal Randeree

30th of May 2014

DEDICATION

I would like to dedicate this research to my parents – Ismail and Fathima Randeree – and my sister – Farzaana Soni.

Collectively, you have been my "rock" through the years of my architectural career and well before that as well, making it only fitting that the culmination of my studies is dedicated to you. You have given me the guidance, support, and encouragement that would take me a lifetime to repay. I love and thank you dearly, and express my gratitude to you through this poem:

"When you've got a family like mine,
You surely would not mind
They would cheer you on at any game,
All the way until you walk through the hall of fame.
They make you feel better when you are blue
And whisper in your ear, I love you
They would teach you something new everyday
And help you find success in everyway
They attend to your everyday needs
Whether it is buying pencils or beads
They make sure you are comfortable where you are
Whether you are in a house or a car
They would not let obstacles keep you down
And create a smile from your frown
They teach you wrong from right
And encourage you to keep your dreams in sight
They wipe your tears away when you are sad
And calm you down when you get mad
Thank you family for all that you do
I don't know where I would be if it weren't for you"

Anisha R. Patel

ACKNOWLEDGEMENTS

First and foremost, I would like to thank the Almighty for having provided me with an opportunity to reach this point in my career, undertaking my Master's work.

My gratitude goes to my Academic Supervisor and Academic Leader in the Architecture Discipline, School of Built Environment and Development Studies at University of KwaZulu-Natal, Mr. Mthembeni Mkhize for his undivided attention and professionalism in guiding me throughout this research, up until completion.

I would like to thank Mr. Juan Solis for his constant support and feedback whenever I required further assistance in my research.

I am indebted to my ongoing mentor, Mr. Ivor John Daniel, for being so supportive and influential in my architectural career thus far.

I wish to thank my family: my father Ismail Randeree, mother Fathima Randeree, sister Farzaana Soni, and brother-in-law Zaid Soni, for their love and support throughout my life.

A special thanks goes out to my friends and colleagues: Afzal Subratti, Laila Tickley, Kajal Budhia, Jameel Omarjee, Ahmed Olla, Tahir Seedat, and Faraaz Sayed Essop.

Lastly, sincere thanks to the staff of the Barry Biermann Architecture Library at the University of KwaZulu-Natal, with particular gratitude to Mr. Tim Reddy for all his assistance and time taken in helping to locate information.

PART ONE:

BACKGROUND RESEARCH

TABLE OF CONTENTS

PART ONE:

BACKGROUND RESEARCH

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

ABBREVIATIONS

ABET	Adult Basic Education and Training
CNC	College of New Caledonia
FET	Further Education and Training
HET	Higher Education and Training
NQF	National Qualifications Framework
NSDS	National Skills Development Strategy
NVQ	National Vocational Qualifications

CHAPTER 1:

INTRODUCTION

This research is undertaken to gain an understanding of "experiential learning". The knowledge gained will be used to demonstrate a better understanding of how buildings for adult education should be designed. This will provide a new model for vocational training centres in South Africa, assisting in providing adult learners with the necessary tools for a better way of life and employment opportunities, not just for the present, but also for future growth, in a challenging socio-economic environment.

1.1 BACKGROUND STATEMENT

Experiential learning programs are increasingly being utilised in higher education, as well as adult education, worldwide. For many so-called non-traditional students – minorities, the poor, and mature adults – experiential learning has become the chosen method for learning and personal development in colleges and universities (Kolb, 1984: 3). However, it is not incorporated in adult education in South Africa.

South Africa is a country that has been dramatically affected by past policies and inequalities that has affected employment and education in particular. Many adults have had to carry the burden and reality of the situation to this day, being that their lives would possibly never change for the better and that future generations could be affected by their lack of progression.

Figure 1: Protest against Bantu Education of the Apartheid era in South Africa (www.mikesmithspoliticalcommentary.blogspot. com).

Figure 2: Protest against Bantu Education of the Apartheid era in South Africa (www.sahistory.org.za).

Immediately after the establishment of the first democratic government in 1994, the structure of adult education changed as the Department of Labour replaced the racially segregated apartheid skills system by developing the National Skills Development Strategy (NSDS).

The intention was that the new system will regulate the market of provision of training and ensure that training within Further Education and Training (FET) institutions was responsive to the specific needs of employers (Allais, 2012: 633).

NQF LEVEL	NQF BAND	TYPE OF QUALIFICATION
GET 1	General Education & Training	Grade 0 - 9 (Pre-school to Std 7) ABET 1 to 4
FET 2 3 4	Further Education & Training	Grade 10 - 12 (Std 8 to Std 10) Short Courses, College and Workplace Certificates
HET 5 6 7 8	Higher Education & Training	Certificates, Diplomas, Degrees, Higher Diplomas, Masters Degrees, Doctorates, etc.

Table 1: The bands of education in South Africa (Janisch, 2002-2003: 20).

The competency-inclined system is still currently implemented and levels of training for low-to-intermediate level skills remain extremely low (Mukora, 2009, cited in Allais, 2012: 634). Basically the NSDS has been, and currently is, achieving minimal skills development. Numerous studies have suggested that economic growth has been inhibited particularly by skills constraints in South Africa as huge portions of the adult population cannot acquire basic employment (International Labour Conference, 2008: 1).

More importantly, given that basic employment cannot be achieved based on the skills acquired at the FET institutions, the urgency within adult education to get adults educated and employed certainly hinders lifelong progression as the institutions do not accommodate for learning experiences to be made – thereby limiting the skills and knowledge obtained in an active and meaningful manner.

The unemployment rate has risen even further from its already high levels in the early 1990's (Apartheid period), despite the efforts by the current government to amend this along the years, leading to a situation in which South Africa now has one of the highest rates of unemployment in the world (Hodge, 2009: 489).
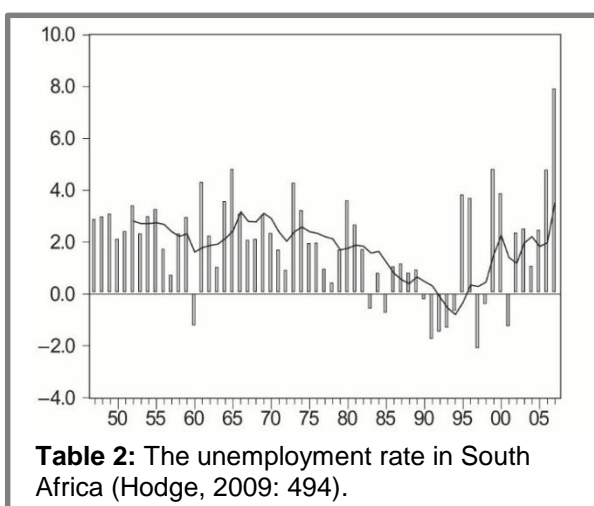
Table 2: The unemployment rate in South Africa (Hodge, 2009: 494).

John Dewey has stressed the importance of "experiential learning" for continuity and progression in life, stating:

"The modern discovery of inner experience, of a realm of purely personal events that are always at the individual's command and that are his exclusively as well as inexpensively for refuge, consolidation and thrill, is also a great and liberating discovery. It implies a new worth and sense of dignity in human individuality, a sense that an individual is not merely a property of nature, set in place according to a scheme independent of him…but that he adds something, that he makes a contribution" (Kolb, 1984: 1).

1.2 MOTIVATION/JUSTIFICATION FOR THE STUDY

The research aims at improving the quality of adult education, with particular emphasis on vocational training, in that no matter what level of formal education individuals have, anyone can be taught a skill, if the desire to learn is there. Vocational training is integral in finding an identity as one can hold claim to mastering a trade and focussing on specific areas of the economic world (International Labour Conference, 2008: 1). Competency in these skills will prepare the individual for improved and varied ways of earning an income.

However, vocational training, given the economic urgency in the country, is very much driven and pressurized by the labour force. This causes such institutions to be very formal and rigid in their approaches and do not accommodate for adult learners in the best manner. In order to enhance the knowledge gains for future growth, such institutions are to encourage meaningful and continuous learning experiences.

FET Colleges have been in existence to accommodate for the large population of which are unable to complete schooling or cannot register at formal tertiary institutions. Unfortunately, there has been minimal progress towards evolving this level of education and training as most organisations either make use of existing facilities which were not originally designed for adult education or establish new adult education centres within the township areas, thereby struggling to accommodate for interactive learning experiences.

1.3 PROBLEM STATEMENT, AIMS AND OBJECTIVES

1.3.1 STATEMENT OF THE RESEARCH PROBLEM

Due to the urgency in overcoming the unemployment epidemic in South Africa, vocational training institutions (non-formal educational institutions) are very rigid in their approaches, serving to educate and train learners with minimal learner involvement. Learners are seen more-so as passive recipients, rather than active participants in a built learning environment that is meant to emphasise on "activity". The architecture of these learning environments often results in barriers being formed between learners and their colleagues, learners and educators, and learners and the wider public. Hence, learners are not able to acquire the necessary tools towards a better life and employment opportunities.

1.3.2 AIMS

The aim of the research is to gain an understanding of "experiential learning". The knowledge gained will be used to demonstrate a better understanding of how buildings for adult education should be designed. This will provide a new model for vocational training centres in South Africa, assisting in providing adult learners with the necessary tools for a better way of life and employment opportunities, not just for the present, but also for future growth, in a challenging socio-economic environment.

1.3.3 OBJECTIVES

Primary Objectives:

- To investigate the ability of adult learners to be actively involved in instructionally-based education (theoretical and practical), and the architectural space provisions for such learning.
- To investigate the role social interaction can play in creating learning experiences, and the architectural space provisions for such learning.
- To investigate the ability for learners to "experience" the architectural learning environment – being meaningful and motivational for the users.

Secondary Objectives:

- To understand global definitions for adult education, as well as strategies and philosophies used for vocational training.

- To understand the characteristics of the adult learner.
- To investigate the principles of an architectural expression appropriate to this project.

1.4 SCOPE OF THE STUDY

1.4.1 RESEARCH SCOPE AND LIMITATIONS

This research is aimed towards adult education as this contains a higher risk with regard to the steering of the economic sector in the right direction (Foster, 2011: 1). The careers of young entrants into the job market could be in jeopardy in the distant future (with regard to a suitable tertiary education and economic progression) if education is not provided at an early stage. However, the challenge of hindering the unemployment rate has to be taken by adults of whom the need to pave the way for their children is of utmost importance.

The research will deal with skills development (vocational training) within low and intermediate level skills (Further Education and Training) as this has a stronger link with the unemployment rate of the country. Focus will be on the engineering and construction sectors as these fields are not only broad areas of skills development, but more importantly on the fact that such training sectors do not produce sufficient numbers of skilled labourers. Other smaller fields of vocational training will also feature in the research.

This limits the research undertaken and identifies areas of focus. The topic has the potential of being broad and such limitations are necessary.

1.4.2 DEFINITION OF KEY TERMS

Aesthetic: Concerned with beauty or the appreciation of beauty.

Built Environment: The human-made surroundings that provide the setting for human activity, ranging in scale from buildings and parks or green space to neighborhoods and cities that can often include their supporting infrastructure, such as water supply, or energy networks.

Campus: The grounds and buildings of a university or college.

Cognition: The mental action or process of acquiring knowledge and understanding through thought, experience, and the senses.

Competence: The ability to do something successfully or efficiently.

Experience: Practical contact with and observation of facts or events; an event or occurrence which leaves an impression on someone.

Heterogeneity: The quality of being diverse and not comparable in kind.

Indigenous: Originating or occurring naturally in a particular place; native.

Interactive: (Of two people or things) influencing each other.

Legibility: The quality of being clear enough to read.

Longevity: Life Long.

Orientation: The action of orienting someone or something relative to the points of a compass or other specified positions.

Passive: Accepting or allowing what happens or what others do, without active response or resistance.

Perception: The ability to see, hear, or become aware of something through the senses.

Phenomenon: A fact or situation that is observed to exist or happen, especially one whose cause or explanation is in question.

Philosophy: A theory or attitude that acts as a guiding principle for behaviour.

Physiology: The branch of biology that deals with the normal functions of living organisms and their parts.

Poverty: The state of being extremely poor.

Practical: Of or concerned with the actual doing or use of something rather than with theory and ideas.

Psychology: The scientific study of the human mind and its functions, especially those affecting behaviour in a given context.

Reflection: Serious thought or consideration.

Segregation: The action or state of setting someone or something apart from others.

Self-Sustainment: Able to sustain oneself or itself independently.

Sensation: A physical feeling or perception resulting from something that happens to or comes into contact with the body.

Sociology: The study of the development, structure, and functioning of human society.

Theoretical: Concerned with or involving the theory of a subject or area of study rather than its practical application.

Vocation: An occupation to which a person is specially drawn or for which he or she is suited, trained, or qualified.

1.4.3 STATING THE ASSUMPTIONS

- Adult learners will have better opportunities towards lifelong economic and social progression by being completely involved in, and connecting with, the learning (education and training) within the built learning environment.

- The government has not made substantial progress towards vocational training in South Africa since the end of Apartheid.

- Higher Education and Training (HET) institutions provide a suitable system of education for learners to have variability in employment opportunities, allowing for lifelong progression.

1.4.4 RESEARCH QUESTIONS

Primary Questions:

- How can adult learners be actively involved in the curriculum within the built learning environment, thereby enhancing knowledge gains and learning experiences created?

- How can collaborative learning experiences and social connections be created in the built learning environment, given that any space has the potential of being an informal learning space?

- How can the built learning environment encourage "meaning-making" and "continuity" through psychological connections between learners and the built environment?

Secondary Questions:

- What is the local adult educational strategies in South Africa, as well as influential global strategies?

- Who is the typical adult learner (active learner) and how can educational and architectural accommodations be made for the typical adult learner?

1.4.5 HYPOTHESIS

The way to making society better prepared for the job market is to investigate "experiential learning" and its impact in designing buildings for adult education. This is seen as a means in providing the necessary tools for employment opportunities, not

just for the present, but also for future growth, in a challenging socio-economic environment.

1.5 RESEARCH STRUCTURE

Chapter One:

This chapter offers a brief overview of certain aspects relating to the origins of the research topic. It explains what the core of the problem is within adult education and training in South Africa, and its effects on the unemployment rate and lifelong economic progression in the country. It goes on to form a boundary within which the research will fall by discussing the aim and objectives, as well as the research limitations and posed questions.

Chapter Two:

In this chapter, the chosen research methods and materials/devices are discussed of which is appropriate in relation to the topic. It forms a structure for the type of research required, explaining why qualitative methods are suitable for the research. It discusses physical interviews and observation (as a recognized outsider), as these are the chosen methods for this research. It offers a vague explanation of the type of locations where research is to be undertaken and discusses the subject groups of society. It eventually forms a boundary within which the chosen site for the proposal will be located, that being within Durban.

Chapter Three:

The theories and concepts chapter serves as a foundation for the research, identifying and briefly explaining the key theories and concepts for further in-depth discussion in the literature review chapter.

Three theories have been identified, which all contribute towards the research, pertaining to the research questions and topic. The primary theory is an adult educational theory developed by American educational theorist, David A. Kolb. This is followed by secondary theories - a social theory developed by a developmental psychologist, Lev Vygotsky, and an architectural/psychological theory developed by Norwegian architect and phenomenologist, Norberg Schulz.

Chapter Four:

The literature review is interdisciplinary, serving as an intense discussion between various thinkers in the fields of education, sociology, psychology, and most importantly architecture. The literature relates to the identified theories and concepts, as well as the research topic.

The discussion will commence with "Adult Education and Vocational Training", followed by "Characteristics of the Adult Learner". These sections serve as definitions of independent components of the research and are therefore independent of the theories and concepts.

The next section discusses the abilities of adult learners to be actively involved in the curriculum within built learning environments. This is followed by a section emphasising on collaborative learning experiences and the connection of social nodes for the sake of knowledge and skills within formal and informal learning environments. The final section offers a detailed understanding of the opportunities for meaning-making and continuity within the built learning environment. The literature expands on the phenomenological aspects assisting in the learning processes.

Chapter Five:

In this chapter, four key precedent studies are identified and information is extracted of which ties in with the theories and concepts, as well as the architectural principles derived from the literature review. The chosen precedents (built environments) are located beyond the boundaries of South Africa, with particular emphasis on international vocational training centres, but not fixed to this building typology. The buildings present specific elements that are relevant to the design of a centre for adult education and training either in terms of concept, structural systems, spatial arrangements and components, or specific details.

Chapter Six:

This chapter involves in-depth analysis of the information gathered via the primary research methods and materials mentioned in chapter two. Two case studies are selected within the suburban and township contexts of KwaZulu-Natal, South Africa, which are adult education and training centres. The focus within these centres are on the education and training methods used, movement patterns of learners, and

the architectural design decisions. Appendices pertaining to this chapter are to be found at the climax of the document.

Chapter Seven:

This chapter features as a summary of the analysis, discussion, key responses and findings from the entire research document. It formalises the outcomes of the research undertaken to get an overall perspective on the significance of "experiential" learning within built learning environments in order to design buildings for adult education.

Chapter Eight:

In this closing chapter, a theoretical framework is formed, governed from the information from the previous chapter (chapter seven). This is followed by a conclusion and recommendations towards the design proposal of the adult education and training centre in Durban.

CHAPTER 2:
RESEARCH METHODOLOGY

2.1 INTRODUCTION

The research carried out for this dissertation is aimed at developing the philosophical and conceptual underpinnings for "experiential learning" within built learning environments in order to build up a solid base of information towards the design of an adult education and training centre.

It is intended that qualitative methods of research be used, comprising of primary and secondary data, to get a precise and detailed understanding of aspects relating to the problem. The scientific research method has the potential for the formulation of principles towards the design proposal.

The research will initially draw on published literature pertaining to the theories and concepts, as well as research topic. The precedent studies will follow, looking at four successful international precedents.

The study will eventually be located in KwaZulu-Natal, South Africa. It involves empirical research (observation and interviews), featuring two case studies.

The culmination of this research will be the development of a final theoretical framework, the development of a detailed design brief comprising of site selection and a schedule of accommodation, followed by a concept and the design of an Education and Training Centre for adults in Durban.

2.2 RESEARCH METHODS

2.2.1 PRIMARY RESEARCH

Observation – Recognised Outsider:

A recognized outsider is a researcher who is able to conduct research by being excluded from the cultural environment and society in focus, yet still being physically present and recognized as an outsider within the setting. In such a circumstance, it would involve the introduction of oneself as a researcher to those of whom are to be observed.

Such an observation has been chosen so as to get a closer and accurate reading of the behavior of adult learners, as well as educators, in their learning environments by not being deceptive. In addition, it will assist in getting a clearer visual understanding of what architectural elements and spaces constitute for such behavior.

Such an observation can be misleading as the subjects can act out of character because of the "camera" being present. This is known as the "Hawthorne Effect", and can cause negative readings as the subjects are not familiar or accepting of the presence and intentions of the observer. Such an effect is an important factor to consider. However, deception is something which has more potential of being detrimental to the research undertaken.

This method will be conducted at the sites of the case studies.

Physical Interview – Structured and Unstructured Questions:

Physical interviews are face-to-face meetings that deal with in-depth discussion regarding a specific subject/category of which the respondent is very familiar with. It requires a structure of which to follow with regard to interview schedules and guides in order to acquire maximum feedback from the respondent according to the desired criteria.

Structured interviews will be conducted with predominantly adult learners, as well as educators and members of higher management, of whom are directly involved in the educational processes. This will be done at the sites of the case studies.

The research will also feature unstructured interviews with each principal architect of whom designed the built environments (case studies) in focus and whom would have sufficient knowledge concerning the architectural design decisions for such built environments. This will be conducted as informal interviews with no predetermined questions and will be done at an arranged meeting place, preferably the offices of the respondents.

2.2.2 CASE STUDIES

The first case study is of the Engineering Training Centre within the Cato Manor campus of the larger Thekwini FET College network. The Training Centre has theoretical, and more-so practical, learning facilities for the education and training of the adult population. The campus is one of merely a few FET Colleges in the country

which were designed and constructed for the purpose of adult education and training, and serves as a positive contribution to adult educational architecture in the country.

The second case study is of the Port Shepstone campus (of Esayidi FET College) in Oslo Beach, Port Shepstone. Similar to most FET Colleges in the country, the campus was a redevelopment project, initially operating as a government school. The campus epitomises typical FET Colleges within the country, struggling to provide a suitable level of adult education and training.

2.2.3 SECONDARY RESEARCH

Firstly, it involves a literature review of relatively current published material relating to "experiential learning". Such information has a strong connection with the theories and concepts, as well as the research topic.

Secondly, it involves the analysis of four existing successful built environments located abroad, which relates to the theories and concepts, as well as principles derived from the literature review. The first precedent study is of a vocational training centre (reused building) located within the campus setting in an urban context in Canada. The second precedent study is of a vocational training centre located within the campus setting in an urban context in India. The third precedent study is of an experimental town which is constantly being developed within a desert in the United States of America. The fourth precedent study is of a public library/media centre in the urban context in Japan.

All four precedents present specific elements that are relevant to the design of a centre for adult education and training either in terms of concept, structural systems, spatial arrangements and components, or specific details.

2.3 RESEARCH MATERIALS

Observation as Recognised Outsider – Notation and Photographs:

The choice of devices or materials according to the type of observation and environment is by means of notation and still photography.

Notes and diagrams will be taken of the adult learners and the educators in the various learning environments. It will help to evaluate the relationships between such groups of people and the relationship between learners and the built environment.

Photographs will be taken specifically for account of the architectural aspects of the environment. Such aspects are those which relate to the behaviour of the educators, and more importantly learners.

Structured/Unstructured Physical Interviews – Notation and Voice Recording:

A voice recording device will be used for structured and unstructured interviews as it will make the process more efficient in comparison to notations. The voice recordings will later be transmitted to a written format.

For the structured interviews, a written set of predetermined questions will be used in order to obtain the relevant information according to certain criteria.

2.4 METHODS EMPLOYED IN THE DATA ANALYSIS

The gathered literature from the work of various thinkers will be critically analysed first, using the most relevant information specific to the research. The literature will be composed into discussions pertaining to certain topic areas, with the knowledge and opinions of the researcher being very much part of the discussions. The direction that the discussions take will help formulate principles towards the design proposal.

Secondly, the gathered literature, drawings, graphics and photographs of the various precedent studies (built environments) will be analysed and composed to suite the design principles derived from the literature review. The drawings and graphics will be marginally manipulated and personalised to highlight key components.

Finally, the empirical research will be analysed. The personal notes, diagrams and photographs taken at the case study sites (built environments) will be analysed, along with the addition of gathered literature and drawings (which will be personalised according to specific aspects which need to be illustrated). The case study either relates to the design principles derived from the literature review or serves as a negative influence on the research and thereby does not relate to the principles.

The interviews conducted at the case study sites, as well as those conducted elsewhere, will be compiled together and compared in order to obtain an overall consensus of the views of the respondents pertaining to a general criteria. Certain information gathered from the interviews will be used within the case studies, due to its link with the specific built environments.

2.5 CONCLUSION

The research methods chosen are seen to be most effective with regard to research undertaken in the educational sector. The methods suggest that it is mostly through personal observation that the observer learns the most. Drawing from other peoples experience of what works, and what doesn't work in these spaces is essential for a proposal that is a sound, interesting and imaginative architectural solution for an adult education and training centre.

CHAPTER 3:

THEORIES AND CONCEPTS

3.1 INTRODUCTION

The theories and concepts chapter serves as a foundation for the research, identifying and briefly explaining the key theories and concepts for further in-depth discussion in the literature review.

Three theories have been identified, which all contribute towards the research, pertaining to the research questions and topic. The primary theory is an adult educational theory developed by American educational theorist, David A. Kolb. This is followed by secondary theories - a social theory developed by a developmental psychologist, Lev Vygotsky, and an architectural/psychological theory developed by Norwegian architect and phenomenologist, Norberg Schulz.

3.2 EXPERIENTIAL LEARNING THEORY

The theory was developed by an American educational theorist, David A. Kolb, whom defines learning as the process whereby knowledge is created through the transformation of experience. The experiential learning theory assists educators devise programs in formal learning environments, emphasising how "experience" creates "longevity" in the educational context, and thereby progression.

The Experiential Learning Theory model discusses two dialectically related modes of gaining experience. Such modes are namely, Concrete Experience (CE) and Abstract Conceptualization (AC). Progressing from that are two dialectically related modes of transforming experience - Reflective Observation (RO) and Active Experimentation (AE).

Concrete experience is "learning by encounter," which can be the ability to learn from different people (preferably the educator) which have experiences to share of which can possibly be newly found knowledge to the learner. The senses (sight, touch, hearing, smell, and taste) are exposed and utilized in the learning context (Guthrie and Jones, 2012: 54/55).

Reflective observation is "learning by reflecting." This learning deals with having a better understanding by relating more intimately with the topic area through

reflection. "Experience" as the term is known to be defined as, plays a huge role in this as past experiences can assist the learner. Learners can affiliate themselves with areas relative to the area of discussion and therefore generate more meaning. The learner develops generalizations, makes speculations and examines the topic through references (Guthrie and Jones, 2012: 54/55).

Abstract conceptualization is "learning by thinking," which is logically analysing ideas and generating an understanding through a professional standpoint. The necessary methods of research would be undertaken to get a complete grasp of the topic area. This could be done by visiting such areas and forming a strong relationship with the study area (Guthrie and Jones, 2012: 54/55).

Active experimentation, "learning by doing," is demonstrated by showing ability to get things done, taking risks, or influencing people and events through action (Kolb, 1984). The learner personally gets involved in the topic area by being "hands-on" (Guthrie and Jones, 2012: 54/55).

Figure 3: Kolb's experiential learning model (Kolb, 1984: 42).
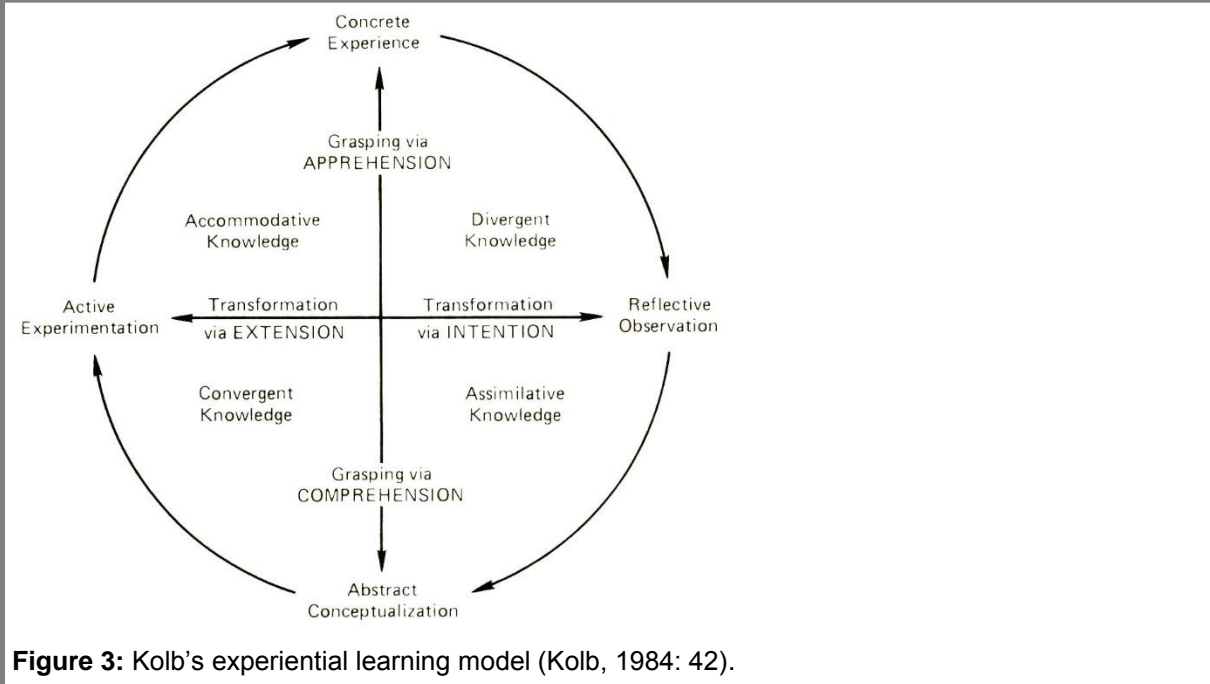
The notion of "experience" in the educational context was first mentioned by John Dewey, an American philosopher, psychologist, and educational reformer whose ideas have been influential in education and social reform. He believed that progression can be achieved if students are allowed to experience and interact with the curriculum in the educational environment; all students should have the opportunity to take part in their own learning. (Jackson and Caffarella, 1994: 6). It is through this

reasoning that Dewey became one of the most famous proponents of "hands-on learning" or "experiential education", which is related to, but not synonymous with "experiential learning".

The theory relates to the research questions and topic in that it assists in the understanding that active involvement and reflection (on past experiences) in the learning processes is essential in creating positive learning experiences. It provides guidance for applications to helping people improve their learning and designing improved processes in adult education and development. The educator needs to adopt this model of adult learning into the curriculum to ensure that adult learners obtain the most meaningful learning experiences within the formal learning environment. The theory therefore serves as a guide towards the concept of "Active Learning".

3.3 SOCIAL CONSTRUCTIVISM OF KNOWLEDGE

Social constructivism is a sociological theory of knowledge. In the field of education, it pertains to the interaction between different learners for group gains in any environment if the opportunities for collaborative learning are there. This type of learning tends to be more informal in nature.

Figure 4: Graphic of Social Constructivism (www.blogs.corpu.com).
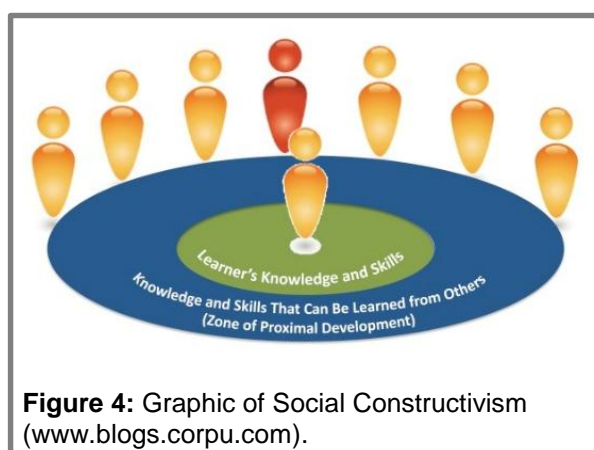
As Lev Vygotsky noted, the construction of meaning is not only built up from an isolated personal perspective, but also within a dynamic social context. Lev Vygotsky, a developmental psychologist, became renowned for his theories on social constructivism. Social constructivism is based on the social interactions of learners in an educational setting, along with a personal critical thinking process (Katherine and Cody, 2009: 3).

The experience of the learners deals with the fact that as adults, experiences have been collected and mentally stored through the many years of living. The quantity and quality of experiences obviously differs between various groups of people. The differences in experience assure greater heterogeneity in groups of adults as they learn best from one another (Knowles, 1985: 10).

Paulo Freire (1970), a Brazilian educator and philosopher, suggests that the goal of education is to raise the critical awareness of learners by means of experiential encounters with the realities of their culture. It is through critical reflection that people become mindful of the cultural and psychological assumptions that have factored in the way they perceive themselves to be. Therefore, Freire conceives of transformational learning as a radical social change, of which is well suited for the South African context which still feels the negative effects of past policies (Jackson and Caffarella, 1994: 7).

Adult education, in a sense, is a common goal and blurs boundaries between differing social groups and economic classes within our greater society. The boundaries are blurred between people, no matter what their background is, because they are learning for the same purpose. They have realised the need to come back to gain knowledge and skills in order to lead a better way of life, and so are in the educational environment following a common goal or purpose.

The theory relates to the research questions and topic in that it suggests that multi-dimensional transfer of knowledge and skills in any environment can result in that environment potentially becoming an integral space for learning experiences to be made through social interaction. The architectural design of formal and informal learning spaces needs to promote this sense of large-scale development through collaborative learning activities, bringing people together not just from the immediate surroundings, but from a wider physical and social context. It should bridge the gap between different cultural and economic communities, expanding on the cognitive development of adult learners. The theory therefore serves as a guide towards the concept of "Social Connections"

3.4 GENIUS LOCI

"Man dwells when he can orientate himself within and identify himself with an environment, or, in short, when he experiences the environment as meaningful" (Norberg-Schulz, 1980: 5). Upon account of this, Genius Loci (a spirit of place) serves as a direction for discussion. This theory was developed into an architectural context by Norwegian architect and phenomenologist, Norberg Schulz.

Individuals can have vastly different emotional reactions to the same environmental stimuli based on various factors. However, there are common norms of which would create positive reactions by the users of the spaces.

"Genius Loci" was developed from the literature of Edmund Husserl on "phenomenology", which aims to describe phenomena as human experiences, by which people consume environmental information and make meaning of such information. (Norberg-Schulz, 1980:5).

There can be a phenomenology of learning, light, colour, architecture, landscape, place, change, economy, sociability, and so forth. All of these terms are phenomena because human beings can experience, encounter, or live through them in some way. The architect has to take various such phenomena into account in order to be able to create architecture with meaning. Architecture cannot be merely an aesthetical exercise, or a technological construction to be able to create a "genius loci". It needs to be an approach in which both are amalgamated.

"Experience" has connotations of "meaning" since experiences are such occurrences which leaves a long-lasting impression on the individual – one that he or she can personalize and relate to.

The theory relates to the research questions and topic in that it explains how meaning can be created through perceptions of the built environment, and can be associated with the built learning environment. Environments that elicit positive emotional responses could possibly have dramatic effects on individuals, being that it could lead to enhanced learning, as well as a powerful, emotional attachment to that space (Oblinger, 2006: 6.2). The theory therefore serves as a guide towards the concept of "Meaningful Built Learning Environments".

3.5 CONCLUSION

The brief explanation of the theories and concepts serves as a guide towards the direction that the research will be taking. The literature review, as well as further subsequent chapters, will expand on the theories and concepts with direct application to the research.

CHAPTER 4:

LITERATURE REVIEW

4.1 INTRODUCTION

The literature review is interdisciplinary, serving as an intense discussion between various thinkers in the fields of education, sociology, psychology, and most importantly architecture. The literature relates to the identified theories and concepts, as well as the research topic.

The discussion will commence with "Adult Education and Vocational Training", followed by "Characteristics of the Adult Learner". These sections serve as definitions of independent components of the research and are therefore independent of the theories and concepts.

The next section discusses the abilities of adult learners to be actively involvement in the curriculum within built learning environments. This is followed by a section emphasising on collaborative learning experiences and the connection of social nodes for the sake of knowledge and skills within formal and informal learning environments. The final section offers a detailed understanding of the opportunities for meaning-making and continuity within the built learning environment. The literature expands on the phenomenological aspects assisting in the learning processes.

4.2 ADULT EDUCATION AND VOCATIONAL TRAINING

4.2.1 INTRODUCTION

Worldwide, there are different perceptions of the terms, "adult education" and "vocational training", and it is necessary to analyse how diverse cultures around the world approach this. This analysis of global trends in adult education, specifically vocational training, is done for the purpose of positively influencing vocational training strategies here in South Africa.

4.2.2 DEFINITION OF ADULT EDUCATION

It has been widely acknowledged that adult education involves all activities in which capacities and capabilities of the adult population are developed for specific purposes (Indabawa and Mpofu, cited in Salvesen, 2010: 24). It predominantly involves learning within specific areas of basic education (such as language, literacy, and so forth) or skill deficiency (such as training within the fields of construction, engineering, and so forth).

Within developing countries of which have potentially encountered economic calamities such as that in South Africa, adult education is often referred to as non-formal education as it does not fit within the formal structure of education (schools and universities). Non-formal education is not as structured as formal education in terms of learning objectives, learning time or learning support, though does aim at certification, leading to a recognized qualification.

4.2.3 DEFINITION OF VOCATIONAL TRAINING

The term "vocational training" is synonymous of skills development, and is given to the type of learning which focusses on job skills, providing learners with the basic skills which are specific to an occupation or contributes towards employment opportunities. It is often seen as a means of countering unemployment and preparing learners for the labour market. It therefore serves as a connection between academic learning and industry (Brunette, cited in Hartl, 2008: 21).

It comprises more of practical subjects, being specific to "hands-on" occupations such as construction, engineering, automotive repair, and so forth. However, it also comprises of subjects with less practical training and rather a more theoretical base, such as computer literacy, business management, and so forth.

It pertains more to the adult population of which has no formal education, providing individuals with the opportunities of becoming active members of society and allowing them to self-sustain themselves (McNamara & Pike, cited in Salvesen, 2010: 29).

4.2.4 GLOBAL AND LOCAL TRENDS IN VOCATIONAL TRAINING

The skills development policy in South Africa emphasizes that it is strongly centralizing in terms of control and accountability mechanisms, as well as standards specification. Yet on the contrary, strongly decentralizing in terms of the management and delivery of education and the development of curriculum.

FET Colleges focus on developing previously disadvantaged adult groups in society and serves as a foundation towards a better life. Such institutions accommodate for basic education, and more specifically, vocational training for the direct improvement of the individual as well as community well-being (Adult Basic Education and Training Act 52, 2000: 3).

Vocational training has been recognised in the western world for more than 50 years (Mpofu, 1998 cited in Indabawa and Mpofu, 2006: 4). Countries such as England have devised vocational education and training systems to overcome economic calamities such as that experienced in South Africa. The English model of which was introduced in the 1980's, was "the first national attempt to base vocational qualifications on the idea of competences" (Young, 2009, cited in Allais, 2012: 635). It involved the introduction of the National Vocational Qualifications (NVQ's) (Hyland, 1994, cited in Allais, 2012: 635).

The NQF's are an integral part of the "toolkit" of reforms within developing countries. The English NVQ framework influenced the South African, Botswana, and Mauritian NQF's, Australian competency-based training, NQF's in the Caribbean and some Asian countries, and labour competence frameworks in Latin America (Allais, 2010: 636).

Within these countries, continuing vocational education or certification of sets of competencies enables individuals to enhance their "employability". These competencies are either acquired through work-based experience or modularized courses (Brockmann, 2011, cited in Allais, 2012: 635). In this instance, skills are required for immediate job opportunities. Intellectual functions (planning, coordinating, assessing, controlling), of which formulate a curriculum, are sharply detached from the

execution. A negative aspect of this system is that there is a mismatch between "supply" and "demand" of skills. One can only assume that education and employment have become too detached. This may be an explanation for the weak links between vocational education/training and employment (Allais, 2012: 635).

On the contrary, the German vocational education and training system emphasizes on continuing "education" (containing a broad content, based on a curriculum) for a safely balanced occupation, and not on "training" (more specific on short-term employment opportunities). It is meant to develop the ability to act independently and competently within an occupational field, thereby developing an identity (Clarke, 2011, cited in Allais, 2012: 635). This system is founded on abilities that are multi-dimensional and holistic due to the fact that the employment relationship is a long-term one (Allais, 2012: 635).

4.2.5 CONCLUSION

Worldwide, the aim within adult education is the same - to educate the adult population in an attempt to increase the human resource potential of the nation. However, first and third world countries adopt and utilise different processes in vocational training due to the varying circumstances and priorities in the vastly different countries. Regardless though, attempts should be made in South Africa to adopt such systems of vocational training (that of first world countries such as Germany) for long-term economic self-sustainability.

4.3 CHARACTERISTICS OF THE ADULT LEARNER

4.3.1 INTRODUCTION

The targeted societal group for the research (adult learner) is one which has distinct characteristics, of which needs to be understood in order to form certain parameters. The propositions towards "experiential learning" within built learning environments should not surpass these parameters or guidelines. Adult learners vary in many ways to children and it is critical to understand these differences.

4.3.2 DEFINITION OF THE ADULT LEARNER

The universal definition of an adult learner is a person who is eighteen years and older, who is involved in forms of learning. However, the criteria is broader within South Africa due to the unfortunate circumstances that parts of society find themselves in due to past educational provisions. Therefore, levels of intellect and social factors form part of the criteria as well in governing whether an individual is an adult learner.

4.3.3 CHARACTERISTICS OF THE ADULT LEARNER

Malcolm Knowles (1984) mentioned that adult learners are "super learners" due to the fact that there is a multitude of influential factors to consider when providing for them (Galbraith, 1990: 23). Adults are more diverse than children with regards to physiological, psychological and sociological factors. Older adults tend to have more variability when compared to younger adults. Therefore, it is inaccurate to mention "the adult learner" as if there are general characteristics pertaining to all adults (Galbraith, 1990: 25).

Adults function within two particular contexts - their personal context and the much broader social context (Merriam and Caffarella, 1991, cited in Jackson and Caffarella, 1994: 33). The personal context comprises of their responsibilities, goals in life, and so forth, and can define who he or she is as a learner. The socio-economic context of adults can also motivate adults to learn (Merriam, 1993a, cited in Jackson and Caffarella, 1994: 34). Certain influential factors to consider are class, gender, ethnicity, cultural backgrounds, and political processes. (Stubblefield and Keene, 1989, cited in Jackson and Caffarella, 1994: 34).

Life experiences motivate adults to return to the learning environment with a specific goal or desired outcome (Jackson and Caffarella, 1994: 31). Kidd (1973) notes that "adults have more experiences, adults have different kinds of experiences, and

adult experiences are organized differently". Not only do adults differentiate from children in this regard, but they also differentiate between adults (Jackson and Caffarella, 1994: 30). Adults often both want and need to modify, transfer and reintegrate what these experiences mean in terms of their values and beliefs, their storehouse of knowledge, and their skills and abilities (Mezirow, 1991, cited in Jackson and Caffarella, 1994: 31).

Adults vary with regard to their preferred learning style, of which is the manner of processing information within specific learning situations (Hiemstra and Sisco, 1990, cited in Jackson and Caffarella, 1994: 31). A learning style can also be defined as a preferred sensory method of learning. Different methods utilise different senses such as listening and reflecting, visual links, and still others prefer to physically manipulate materials. Learning types are intricate interactions of learners' histories and personalities, of which lead to adult preferences in learning types. Preferences include learning in groups with a great deal of instructor direction, as well as learning in groups by being self-directed, amongst others (Jackson and Caffarella, 1994: 31).

Unlike children of whom are generally passive recipients of knowledge, many adults prefer to be actively involved in the learning process (Knowles, 1980, cited in Jackson and Caffarella, 1994: 32). The idea was recommended by Chickering and Gamson (1987) as one of the seven "principles of good practice" for excellence in undergraduate education. Active learning in educational practices requires that students do more than merely listen, by rather doing things and thinking about what they are doing (Jackson and Caffarella, 1994: 8). Instructors still serve as resources of knowledge, but that contribution is minimized by them serving as resource advisors and learning facilitators (Brookfield, 1986, cited in Jackson and Caffarella, 1994: 32).

4.3.4 CONCLUSION

Adult learners can certainly be viewed as a special kind of learner and such attributes should be adhered to in the learning environment. As adults come into the learning environment with a multitude of past experiences, it is imperative that the learner can make a connection between these experiences and what he is currently learning in order to create meaning of the experiences.

Due to the fact then that the adult is self-motivated and self-directed, there should be opportunities for active learning on the part of the learners. Furthermore,

educational spaces should be more informal, spontaneous, and responsive to the adult needs.

4.4 ACTIVE INVOLVEMENT IN THE CURRICULUM

4.4.1 INTRODUCTION

The "experiential learning" theory, which focusses more on learning by instruction by, and interaction with, the educator rather than other learners, offers an insight into the relevant stages of the adult learning processes whereby adults are actively involved in the learning.

This section discusses experiential teaching/learning methods and their respective architectural space provisions within a formalised learning spaces. All the teaching methods encourage the learners to utilize their past experiences to make more meaning of the current experiences/learning, and be actively involved in the curriculum within the built learning environment, for future adaptability and growth.

4.4.2 EXPERIENTIAL LEARNING AND REFLECTION

As explained earlier, the theory was developed by an American educational theorist, David A. Kolb, whom defines learning as the process whereby knowledge is created through the transformation of experience. His model arose from the cognitive constructivist paradigm, of which Jean Piaget was the key founder. Kolb notes that these experiences can either be objective/environmental (such as employment history) or personal (Merriam and Caffarella, 2007: 161).

In order for learning to occur through experience, Dewey (1938) argued that two major principles must be inhibited in the current experience – "continuity" and "interaction". With regard to "continuity", every experience must allow for the past experiences to feature, as well as accommodate for possible future experiences. Therefore, experiences that provide learning are never merely isolated events at a given period. With regard to "interaction", an experience is always what it is due to an interaction taking place between an individual and whatever constitutes for the environment at that time (Dewey, 1938, cited in Merriam and Caffarella, 2007: 162).

Other writers, of whom have an interest in adult learning, also stressed the fundamental role of experience. Knowles (1973) believes that an adult learner enters into a learning context with an abundance of personal experiences of which has accumulated over his or her entire life. Early educational experiences have instilled a specific manner of gaining knowledge and skills. Although elementary education is generalized, there is an increasing process of specialization that begins at high school and becomes sharper during the college years. This transformation of learning styles

filters to the fact that "experience" plays a vital role in the learning process of adults. Just like Knowles, Lindeman (1961) strongly believes that the experience of the adult learner should serve as his or her living textbook, ready to be appropriated.

An influential theory connecting prior knowledge to learning in adulthood is the "scheme theory" (Di Vesta, 1987, cited in Merriam and Caffarella, 1991: 170). Scheme theory explains the packaging and organisation of knowledge in long-term memory and how this packaging enables the use of knowledge in various ways (Rumelhart, 1980, cited in Merriam and Caffarella, 1991: 170). These schemata are filled with descriptive materials and are seen as the foundations of the cognitive processes, allowing for active processes for the assimilation of new knowledge (Di Vesta, 1987, cited in Merriam and Caffarella, 1991: 170). The learning is therefore a cumulative process, emphasizing that no meaning is generated in isolation from prior experience. This notion relates to Dewey, who said that leaners cannot think about anything without experience and information about it (Cervero, 1988, cited in Merriam and Caffarella, 1991: 170).

As mentioned earlier, adult learners comes to the learning situation with different configurations of knowledge and their knowledge can be used in different ways towards different future applications. By exploring the role of experience and prior knowledge in learning, the amount of that prior knowledge and experience and its nature is of utmost importance. In terms of the amount one possesses, the difference between those who know very little (novices) and those who know a great deal about a subject (experts) is a key distinction.

4.4.3 INSTRUCTIONALLY-BASED LEARNING METHODS AND SPACE PROVISIONS

In a formal learning environment the educator or trainer sets the goals and objectives, and thereby controls the learning situation.

The most commonly used teaching methods which can allow learners to be actively involved in the curriculum and interact with the educator includes lecture, symposium, demonstration and simulation. Each of these teaching methods caters for different learning goals, different group sizes, and different relationships between the educator and the adult learner. The various teaching methods influence the architecture of the spaces designed to accommodate these different techniques. Such

space provisions and furniture layouts are discussed pertaining to the different teaching techniques.

The Lecture:

A lecture is a well-prepared oral presentation given by a highly qualified individual regarding a particular subject matter (Bergevin, Morris and Smith, 1963, cited in Galbraith, 1991: 162). Lectures are able to accommodate medium to large groups of learners and the communication is traditionally one-directional from the instructor to the learners (Farrah, 1991, cited in Galbraith, 1991: 171).

The teaching method is often used in a traditional manner for the theoretical side of adult education. With this one-directional nature of the lecture, there is still a strong possibility that learners may actively process information, reflect upon it, make judgements about it, and even act upon it. By the addition of questioning or discussion, the unidirectional flow of communication can change. Bidirectional flow of communication results from the addition of questioning, whereas multidirectional flow of communication stems from the addition of small-scale group discussion.

Figure 5: Flows of communication in a lecture – from left to right – unidirectional, bidirectional, and multidirectional (Galbraith, 1990: 172).
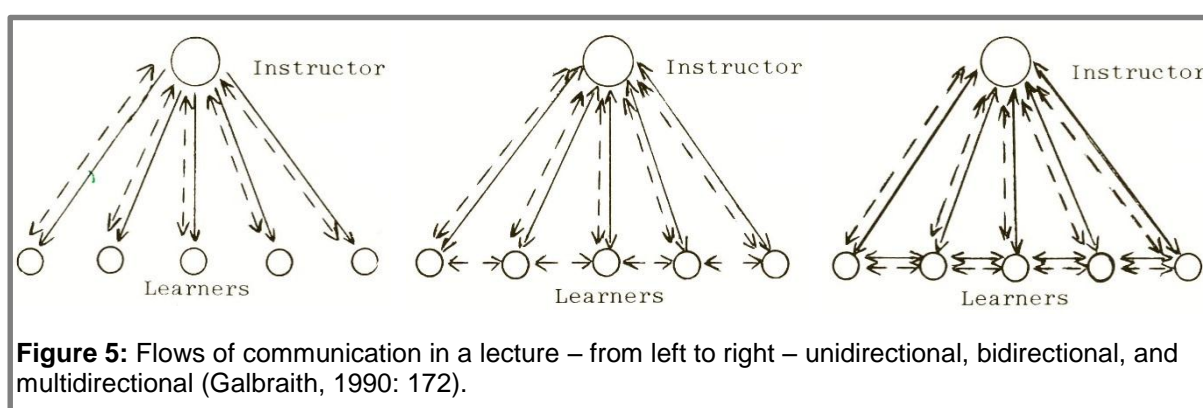
Oral presentations are effective depending on the size of a room, with the appropriate seating arrangement. The room needs to accommodate for the learners, as well as any audio-visual equipment to be used. A small congested room has both physical and psychological effects on the learners. On the contrary, an overly large room can make it difficult for the instructor to maintain eye contact with all members of the audience due to the distance factor (Farrah, 1991, cited in Galbraith, 1991: 173).

Typical venues where lectures are generally given require either fixed or loose tables/chairs, of which accommodate for adult-sized bodies. There are many possible seating arrangements depending on factors such as the group size, use of audio-

visuals, length of the session, and the extent of verbal interaction expected. Three of the most common setups include classroom, auditorium/theatre, and amphitheatre (Farrah, 1991, cited in Galbraith, 1991: 174).

A classroom arrangement can accommodate for a variety of small to medium audience sizes. The setup is generally whereby seating is in a linear fashion facing the lecturer. However, the herringbone pattern is more appropriate as it allows for visual contact between learners and educator, as well as between learners in case of questions arising (Farrah, 1991, cited in Galbraith, 1991: 174).

Figure 6: Seating arrangements in a classroom (Galbraith, 1990: 175).

An auditorium/theatre arrangement is suitable for large groups with no/fairly minimal learner participation. It is of utmost importance that the projection screen at the front of the venue is large and visible enough for all audience members (Farrah, 1991, cited in Galbraith, 1991: 174).

Figure 7: Seating arrangements in a lecture room (Galbraith, 1990: 175).

In an amphitheatre, the audience is seated in a semi-circular fashion round the speaker, and are on raked levels. Acoustics are generally good, and the entire audience has a clear view of the speaker and the projection screen (Farrah, 1991, cited in Galbraith, 1991: 174). The amphitheatre allows for visual contact between learners and educator, as well as between learners in case of questions arising.

Symposium:

A symposium is a series of structured presentations given by two to five persons of whom have rich resources of knowledge pertaining to, or closely related to a specific topic. The symposium tends to be formal because the presentations are given by authoritative figures. However, once the presentations are complete, participation is encouraged from the audience of whom can ask questions (Sisco, 1991, cited in Galbraith, 1991: 285).

With regard to a symposium arrangement, there is a podium on the stage/platform upon which the chairperson and the speakers are located. This layout clearly suggests that the method is formal in nature. Once the presentations are complete, participation is encouraged from the audience of whom can ask questions (Sisco, 1991, cited in Galbraith, 1991: 299).

Figure 8: Flows of communication for a symposium (Galbraith, 1990: 298).

Figure 9: Room layout for a symposium (Galbraith, 1990: 300).
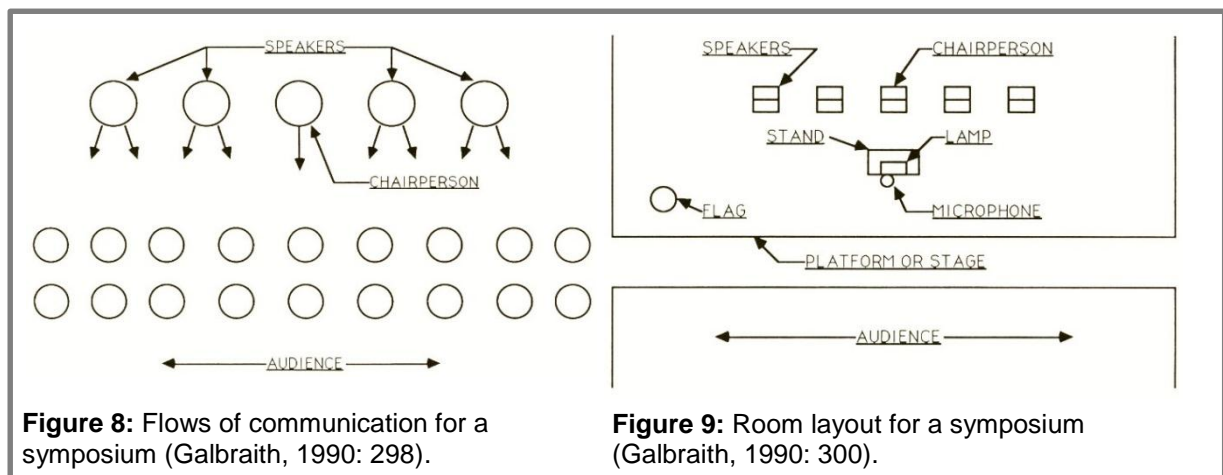
Demonstration and Simulation:

According to Jernstedt (1980), demonstration and simulation are practical teaching methods stemming from experiential learning (Gilley, 1991, cited in Galbraith, 1991: 262).

A demonstration is an instructional method whereby the adult educator actually performs an operation and the learner observes without taking action. This method provides for an economical use of time, equipment, and materials (Gilley, 1991, cited in Galbraith, 1991: 264). There are two main purposes that demonstration serves in instruction – one being that it may be used to provide a model of a skill. The other being that it may be used to support a concept, idea or skill (Gilley, 1991, cited in Galbraith, 1991: 263).

Simulation, on the other hand, is more effective as it allows the learner to actively partake in the learning process, practicing the skills while the educator is demonstrating. The most common techniques of simulation include any methods which provide a dramatic representation of reality (Gilley, 1991, cited in Galbraith, 1991: 272).

Such practical training serves to be the main teaching method in vocational training as it offers hands-on experience which can be useful in the employment sector. Learners need to act and practice upon the skills being learnt, and not merely observe, in order for the knowledge gained to be experiential, creating a strong connection between the learner and the learning process.

The ability for all members to observe the demonstration is integral and the room should be arranged accordingly, by being close enough to observe the details and components (Gilley, 1991, cited in Galbraith, 1991: 270).

For simulation methods, once again the learning environment is an important component as the learners need to observe, as well as practice upon the demonstration. It is difficult to establish exact criteria and conditions for effective simulation exercises as there are different kinds of simulations, of which require different materials and resources (Gilley, 1991, cited in Galbraith, 1991: 278).

Figure 10: Flows of communication and room layout for a demonstration method (Galbraith, 1990: 271).
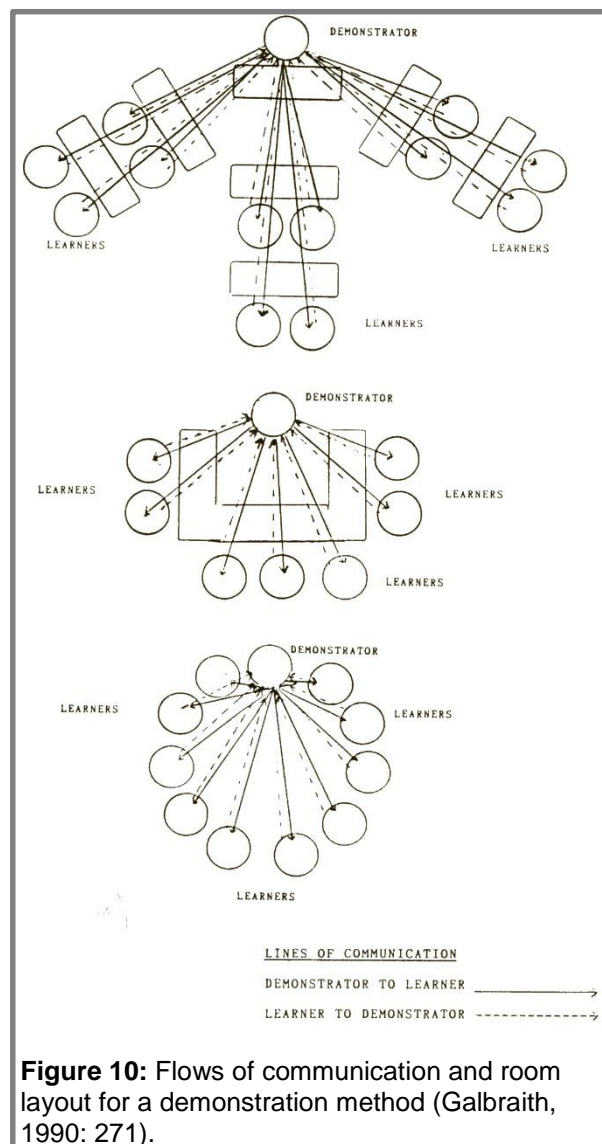
Figure 11: Space configuration for a workshop at John A. Brink Technical Trades and Technology Centre (Taggart, 2006: 41).

Figure 12: Space configuration for boiler-making class at Thekwini FET College (Cato Manor campus) (Author, 2014).

At the John A. Brink Technical Trades and Technology Centre at the College of New Caledonia, as well as at the Cato Manor campus of the Thekwini FET College, practical training is conducted by the trainers within spaces of an appropriate size and configuration for simulation exercises. The furniture and equipment is positioned accordingly within most of the workshop spaces, allowing for the demonstration to be observed by the entire class and for each and every learner to have adequate space and equipment for practice upon the skill.

4.4.4 CONCLUSION

There are numerous opportunities for active involvement on the part of the learner for individualized cognition within instructionally-based learning environments in adult education. Both theoretical and practical learning methods can be more passive, unless there is variability in the traditional manner of such methods, accommodating for questions, discussion, high percentage of simulation, and so forth.

The different space provisions corresponding with the different active learning functions serves as principles towards the design of formal learning spaces for the adult education and training centre. The theoretical, and more specifically practical, spaces within vocational training can therefore utilize this information gathered.

4.5 SOCIAL CONNECTIONS

4.5.1 INTRODUCTION

Social constructs in adult education are interactions between adult learners of whom have a somewhat common goal in life – the collaboration is to gain the knowledge and skills from others in order for a better way of life. Adult learners are drawn together anywhere for such educational purposes, if the opportunities for interaction are there.

This section entails the ability for adult learners to create collaborative learning experiences within formal and informal learning environments, and mentions the concept of "community learning", suggesting a suitable location for this concept.

4.5.2 SOCIALLY CONSTRUCTED LEARNING AND DEMOCRACY

The social democratic legacies of progressive thinkers such as Dewey, Lindeman, Kotinsky, Heaney, and others from the 1920's and 1930's, have contributed to the idea of learning in community through numerous discussions (Stein and Imel, 2002: 18). Heaney (1992) notes that societal movements towards one another are essentially governed by a shared vision of a possible future. This social network comprises of a dynamic fabric of interdependent nodes of action moving towards each other due to this shared vision (Stein and Imel, 2002: 19). Action-oriented communities of adult learners create learning locations according to where these interactions take place (Heaney, 1996, cited in Stein and Imel, 2002: 18).

There are numerous social models for adult education regarding the different contexts and types of action needed. The most prominent one relating to the local context of South Africa and its numerous inequalities still evident due to large-scale political influences, is the radical model. Within this model, poverty and disadvantage is part of the organisation of economic life because of income and wealth inequalities, as well as a lack in employment opportunities which provide more suitable income. It emphasises on the need for political action, raising class consciousness so that the underprivileged communities become more aware of their standpoint in society and become prepared for future changes (such as better employment opportunities) through class solidarity (Elsey, 1986: 69).

This type of progressive thinking is targeted at active groups rather than at individuals. In that respect, the radical model is not primarily concerned with individual growth and success, which is seen as traditional value. It is more concerned with

mobility and success of groups of people in society of which can be termed as social transformation, in comparison to individual transformation. P. Freire, a Brazilian educator and philosopher, is the best known exponent of this radical perspective (Elsey, 1986: 69).

4.5.3 FORMAL COLLABORATIVE LEARNING METHODS AND SPACE PROVISIONS

The most commonly used learning methods which can allow learners to collaborate, sharing knowledge and skills, includes group discussion, forum and case study. Both learning methods influence the architecture of the spaces designed to accommodate these different techniques. Such space provisions and furniture layouts are discussed pertaining to the different techniques.

Group Discussion:

Communication is done in an intertwined multi-directional pattern with learner to learner verbal interaction (Jackson and Caffarella, 1994: 46). Learners are able to become more critical thinkers by exploring their experiences (Brookfield, 1987); allowing them to develop reflective scepticism, to become aware of context, to be able to analyse the assumptions of their values, beliefs, and actions, and to explore alternative ways of thinking and acting (Brookfield, 1991, cited in Galbraith, 1991: 192).

The democratic status of this method has arisen from numerous progressive democratic thinkers in adult education such as Paulo Freire, amongst others. Discussion as a learning method is generally both inclusionary and participatory (Brookfield, 1991, cited in Galbraith, 1991: 187).

Learning synthesis of the information can be enhanced if all members participate in the group learning activity and if the information is related to learners' own experiences. Knowledge richness is enhanced when the instructor guides the discussion so that it does not branch off away from the specific topic at hand (Jackson and Caffarella, 1994: 46).

With regard to group size, between ten and twenty members offers the best opportunities for provocative discussion. If a group is smaller than this, there is a good chance of the discussion becoming introverted, with particular members repeating their information. On the contrary, a group larger than this can pose a threat to those

members who are not entirely comfortable with public speaking (Farrah, 1991, cited in Galbraith, 1991: 173).

Groups of learners can be seated at a circular (or alternative shaped) table in such a way that encourages face-to-face communication between the learners (Farrah, 1991, cited in Galbraith, 1991: 173). Round tables create a collaborative environment for learning and, in most cases, allow learners to quickly and easily create a "community of learners" (Whiteside and Fitzgerald, 2008: 4).

Figure 13: Classroom layout for group discussion (Whiteside and Fitzgerald, 2008: 3).

Forum:

A forum is an open discussion between large groups of twenty-five persons or more and a resource person/s for the purpose of exchanging knowledge and information. The forum is generally semiformal and is guided by a moderator. The audience makes comments, raises issues, offers information, and asks questions of the resource person/s and each other (Sisco, 1991, cited in Galbraith, 1991: 285).
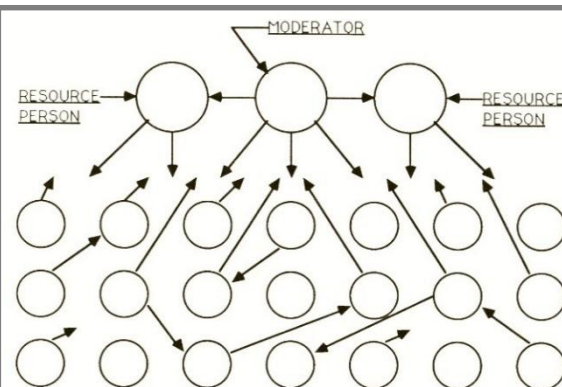
Figure 14: Flows of communication for a forum (Galbraith, 1990: 290).

With regard to a forum arrangement, there is generally a stage/platform upon which the moderator or resource person/s are usually seated in front of the audience. They share a table and each have microphones in order for the audience to clearly hear their comments. The audience can either be seated around round tables or in concentric semi-circles so as to promote optimum discussion in front of the platform (Sisco, 1991, cited in Galbraith, 1991: 291).
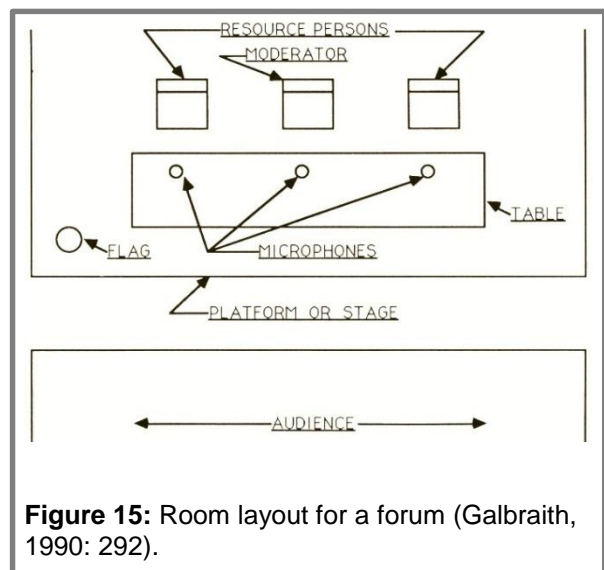
Figure 15: Room layout for a forum (Galbraith, 1990: 292).

Case Study:

A case study is an examination of an intricate problem (concrete situation), of which paves way for a variety of decisions or solutions to solve the problem while considering possible consequences of implementation. The different decisions stems from the fact that participants will generally hold different views about the case (Marsick, 1991, cited in Galbraith, 1991: 226).

Past experiences play a huge role in case studies with regard to making new fruitful experiences – firstly, the case study is built from past experiences; participants bring their own life experiences/prior knowledge into the current learning situation to bear upon the case; and to accommodate for future experiences by building skills that are useful to the learners (Marsick, 1991, cited in Galbraith, 1991: 225).

Case studies can be conducted by individuals or groups of learners, though are seldom used as teaching methods in adult education as it appears appropriate for usage within just a few fields. However, the method should be adopted by educators within adult education, in fields that are (or can be) adaptable in order to accommodate for the method.

The number of participants in the activity and the availability of separate breakout rooms are both highly influential in governing the room arrangement. Separate breakout rooms are more suitable and are small areas in which people sit around a table, allowing them to converse and tackle the case study together (Marsick, 1991, cited in Galbraith, 1991: 234).

There is the possibility of managing the activity within the same main room, although the noise level will be high when group work and discussion is underway. In this situation, groups can also be seated around tables; however, arrangement of tables in a herringbone fashion is more suitable as learners can have sight of each other, as well as the facilitator at the front of the room (Marsick, 1991, cited in Galbraith, 1991: 234).

With regard to equipment, each individual or group will require either a flipchart or transparencies on which to record their findings for presentation to others. A projector could also be used for all individuals or groups to present (Marsick, 1991, cited in Galbraith, 1991: 234).

Figure 16: Flows of communication and room layout for a case study method (Galbraith, 1990: 235).
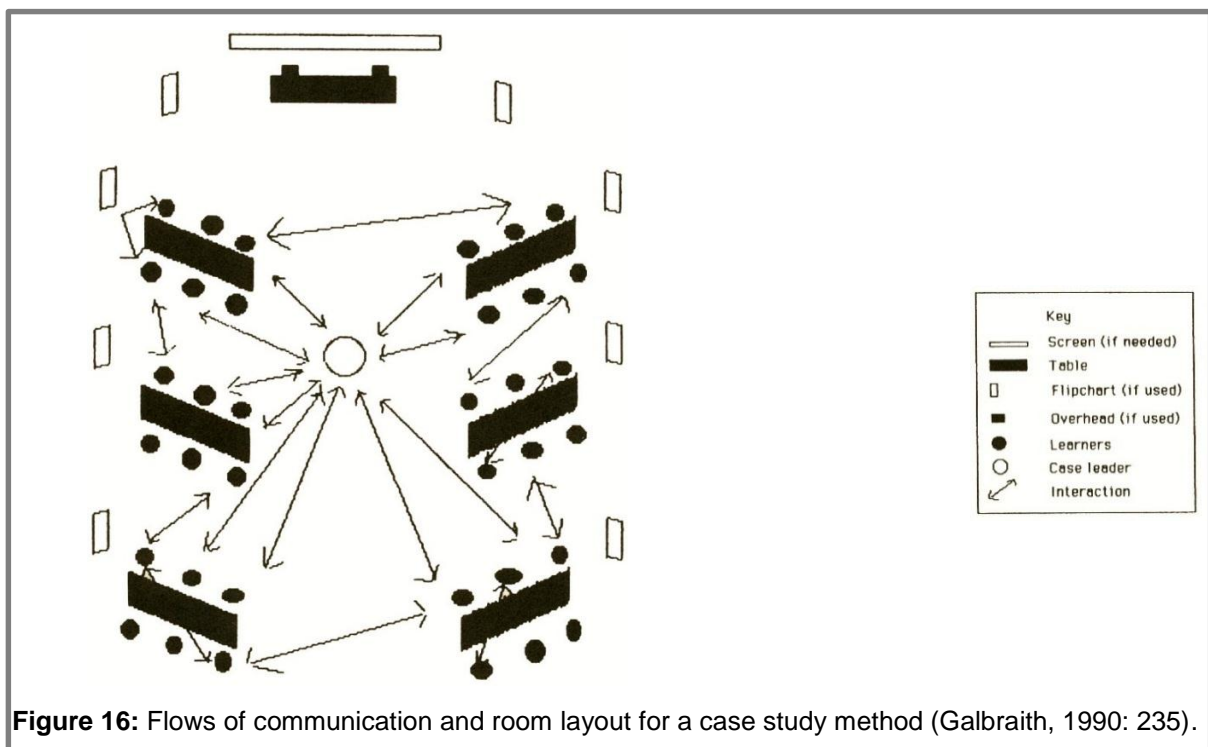
4.5.4 THE ARCHITECTURE OF INFORMAL LEARNING SPACES

Adult learners choose the spaces where they can be empowered and feel comfortable to learn at leisure. Where they can attain a support system, they feel safe and frequently return, content in knowing that they can venture through material and concepts on their terms. In spaces where they feel discomfort and have little to no connection to the space and infrastructure, they leave (Oblinger, 2006: 8.2). Spaces that catalyse social interaction, impromptu conversations, and unexpected meetings contribute to personal, as well as professional growth.

There are numerous kinds of communication devices that, when equipped with universal wireless access, allow almost any space to become a social learning space that learners can use for collaborating, studying, and socializing (Oblinger, 2006: 5.6). The whiteboard is seen as another distinctive resource for potential collaboration, particularly in relation to expressing the visual demands of some science subjects (Crook and Mitchell, 2012: 136). These kinds of spaces often accommodate for food services as well (Oblinger, 2006: 5.6).

Essentially informal learning spaces are designed through the fusion of architecture (floor plans, furniture, and so forth) and technology in order to create powerful learning environments. The library and information technology therefore have strong influences on such spaces due to their services and products (Oblinger, 2006: 9.3). Alternatively, corridors (and other intermediate spaces) can be seen as not merely simple passageways, but rather as productive learning spaces for studying and meetings to occur (Oblinger, 2006: 2.8). Formal learning spaces can open into corridors to create a spacious environment that welcomes continued dialogue between class changes (Oblinger, 2006: 4.9).

The clever utilisation of intermediate spaces in the learning environment is evident in the ES Corridor Project at the Indiana University-Purdue University Indianapolis. There are four interconnected core academic buildings, of which a corridor serves as a routinely used passageway through one of the buildings. This corridor offered opportunities for innovative informal learning spaces. Therefore, the participants created two unique learning spaces that test out different design elements. What is common between the different spaces is that both are united in their intention to serve as a "front porch" to the adjoining classrooms.

The first space contains a whiteboard divider – accompanied by stools for working with visual information, as well as casual seating for group discussion. The

second space uses cabinetry to divide the space into three distinct areas, supporting activities such as quiet study, project work, or informal conversation.

Whiteboard for illustration of visual information.

Circular seating arrangement for group discussion.

Figure 17: First furniture configuration of the corridor for collaboration (Adapted from Oblinger, 2006: 21.2).

Area for group work.

Area for informal conversation.

Figure 18: Second furniture configuration of the corridor for collaboration (Adapted from Oblinger, 2006: 21.2).

Depending on the scale of social interaction, both large volumes and small spaces can be beneficial for informal learning environments. Lower ceilings make space more intimate, and therefore more conducive to social interaction of smaller groups (group study rooms), whereas high ceilings are more suitable to spaces for large numbers of learners (open library spaces). Therefore, group study rooms should have smaller volume spaces, whereas open library or resource spaces should have larger volume spaces.

4.5.5 COMMUNITY LEARNING AND THE URBAN CONTEXT

The term "community" refers to a usually small, social unit of any size that shares common values. Often the term is used within a geographical context – preferably rural areas. Various theorists and researchers have different views on the definition of the term. According to Wates (2000), the term refers to people sharing common interests and living within a geographically defined area (Tickley, 2011: 38). Hamdi (1997) has similar views, pointing out that the term has both social and spatial dimensions, and that generally the people within a community come together to achieve a common objective, regardless of their differences (Tickley, 2011: 38).

Figure 19: Young learners in the community setting (Smit and Hennessy, 1995: cover).

Therefore in a geographical sense, education within the "community" refers to the idea that educational facilities should be evenly distributed within residential areas – of which contain small social groups or units (Smit and Hennessy, 1995: 20). Social advantages to this concept are that such learning environments have the potential to serve as focal points for the creation of stronger community ties. There are generally strong social bonds between community members of which influences their involvement and participation in the running of the

Figure 20: Typical configuration of the "community" concept in a geographical sense (Smit and Hennessy, 1995: 21).

facilities and the educational processes
(Smit and Hennessy, 1995, 26).

On the contrary however, Pahl (1970) mentions that the concept of "community" with locational connotations is a delusion, restricting the less privileged from access to the outside world. This has the capabilities of limiting experiences, social perspectives, and goals, thereby restricting mobility chances (Smit and Hennessy, 1995: 25).

Considering the social exclusions apparent in South Africa, location plays a huge role for educational facilities. The educationally and economically disadvantaged communities should be exposed to as much of the broader society as possible, and not be restricted to their respective communities.

It is certainly important for adult learners to be comfortable in the social context, and therefore it would be preferable for knowledge transfer to be undertaken within their respective communities. However, if exposed to merely the experiences of that community, one may never be exposed to, and appreciate, the wide array of learning experiences available beyond that community environment.

In modern-day society, social relations are less confined to specific localities as there are constant changes in society. Hence, the social network and vertical notions of community (bound by common interests and goals) are more appropriate in comparison to the all-inclusive, traditional ideas which are specific to a locality (Elsey, 1986: 64). A high-intensity environment full of diverse societal groups can expose the symbols and collective memories of group communication (Lynch, 1960: 4).

Therefore the location of the adult education and training centre, being preferably within the urban context, needs to overcome potential fear that generally comes with disorientation as the environment needs to create a "sweet sense of home" within adult learners. The urban context is integral for the purpose of attracting a variety of societal groups. This will allow for a multitude of different experiences being shared for educational and life oriented reasons, diminishing cultural/racial boundaries, and in turn, attempting to encourage a greater level of democracy within the broader society.

4.5.6 CONCLUSION

Formal and informal learning spaces should encourage adult learners to learn together. Such learning experiences encourage the learners to diffuse their knowledge and skills amongst each other for large-scale cognitive development and democracy.

Informal learning spaces need to houses the relevant facilities in order to draw the learners to the spaces, such as resource spaces, studio spaces, as well as other intermediate spaces between formal learning spaces. A positive informal learning space should be accommodating for anyone who has the desire to learn. All indications point to the importance of learning spaces that facilitate social connections.

The concept of "community learning" should not be restricted to that of a location of the community and should be used in a broader social context - that being preferably of the urban context.

4.6 AN EXPERIENTIAL BUILT LEARNING ENVIRONMENT

4.6.1 INTRODUCTION

Learning experiences are meaningful learning occurrences which are functional. However, cognitive gains can also be obtained via psychological processes between man and the environment (learning environment), irrespective of the functions of the spaces. Environment influences human beings, and this implies that the purpose of architecture transcends the definition given by early functionalism (Norberg-Schulz, 1980: 5).

Genius Loci serves as the architectural theory, influential on the ability of the learning environment to create meaningful and continuous experiences. The work of Kevin Lynch will also feature in the discussion, as he emphasises on personalised image-making, through orientation in, and structure of, the urban environment.

4.6.2 CONSTRUCTING MEANING FROM THE LEARNING ENVIRONMENT

Of the writers who stress design for indigenous meaningfulness, possibly the most influential, and developer of "Genius Loci", is Norberg-Schulz. The term suggests that various stimuli affect people's perception of the space, allowing them to have an unexplainable connection with the space, or with the "spirit of place". Architecture represents a means to give man an "existential foothold" (Norberg-Schulz, 1980: 5). The primary existential importance of place is confirmed by the researches of Piaget on the child's conception of space (Norberg-Schulz, 1980: 13).

Existential space needs to be understood as a result from the interaction between humans and the environment. It is a complementary process directed both inwards and outwards. Existential space is relatively stable, and serves as a frame of reference for perceptions as it turns them into experiences (Norberg-Schulz, 1974, cited in Miller, 2011: 25). Built environments are often experienced as extensions of the bodies of societies or users, and the relationship between the human and building is therefore complex.

The term, "Genius Loci", is difficult to explain in detail due to its phenomenological standpoint as a theory, of which is beyond the human understanding. However, what it evident is that it is factual and obviously exists due to the feelings that people have.

A period which sought out to construct simplistic, yet meaningful architecture for specific societal groups to relate to was Modernism. The norm or key characteristic in

building typology during Modernism was of self-consciousness, having meaning, depth, and interpretation. This often led to experiments with form, and work that draws attention to the processes and materials used (and to the further tendency of abstraction).

The reasoning behind this phase was to create a drastic, more effective way of communicating and relating to society. Simplicity is a principle which normally would be thought of as being universal. Though it actually is, more often than not, personal, as it raises questions when uncertainty strikes a viewer; especially when it is related to a subject. Buildings have a narrative, giving the viewer somewhat of a walkthrough of the design process involved (only if not an imitation).

Emotional reactions to environmental stimuli have been shown to vary widely across individuals (especially adult learners and their varying needs) and activities. However, there are common norms of which would create positive reactions by the users of the spaces. Adult learners could possibly feel a sense of anxiety, being reintroduced back into the learning context at a possibly late stage in their life, and would need to have a sense of identity and create special connections with the spaces.

Environments that elicit positive emotional responses may lead not only to enhanced learning but also to a powerful, emotional attachment to that space. The physical environment can affect learners emotionally, allowing learners to reflect on past experiences, with significant cognitive and behavioural consequences (Oblinger, 2006: 6.2). It may become a place where adults love to learn, a place they seek out when they wish to learn, and a place they remember fondly when they reflect on their learning experiences (Oblinger, 2006: 6.2).

The adult learner needs to construct meaning from, and "experience", the learning environment in order for adult learners to feel as though they belong. The potential cognitive gains based on the personalisation of the spaces could allow for lifelong progression.

Paolo Soleri also emphasised on architecture that is not immaterial, but rather forms a strong, unexplainable connection with the human species. In Arcosanti, an experimental and experiential town, Soleri exemplified his steadfast devotion to creating an environment in harmony with man as the town is highly specific to context, using only natural materials, and is constructed by large communities of motivated "learners".
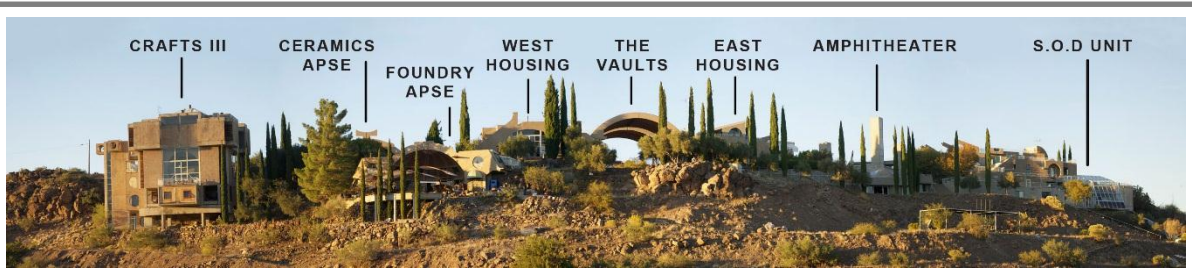
Figure 21: The site specificity of Arcosanti by the use of natural materials (Adapted from www.thestate.ae).

Norberg Schulz clearly directs a message within his work towards special kinds of designers. Designers should not conceive of the built environment in isolation and need to understand that buildings should express the indigenous spirit for enhanced human experiences. This spirit emanates from everything within and surrounding the built environment.

The learning environment therefore needs to be designed in accordance with the adult learners' wants and needs, being accommodating specifically for them. The environment needs to be comfortable, legible and acceptable for adult learners to be given the opportunity to construct meaning.

4.6.3 LEGIBILITY AND ORIENTATION WITHIN THE LEARNING ENVIRONMENT

The environmental image is the product of the person's immediate sensation and the memory of past experience due to environmental perception. Each individual can create a mental construct and store an image of the environment based on his perception of the environmental structure (Lynch, 1960: 7).

Kevin Lynch was a major contributor to the field of "urban imagery". His research in the mental image of the city stemmed from his initial interest in city orientation. Despite the fact that different individuals can possibly create different images of the same city, he developed a set of key components in an attempt to define a city's collective public image. With primary focus on the physical qualities of cities relating to identity, he distinguished elements of the environment that could create a standardized strong impression or image in the mind of the public (Lynch, 1960: 7). These elements consisted of a network of paths, edges, districts, landmarks and nodes. The cities which incorporated these elements were found to have potentially strong "imageability" (Lynch, 1960:2-13).

| Paths | Edges | Districts | Landmarks | Nodes |

Figure 22: The five elements by Lynch (Adapted from Lynch, 1960: 47-48).
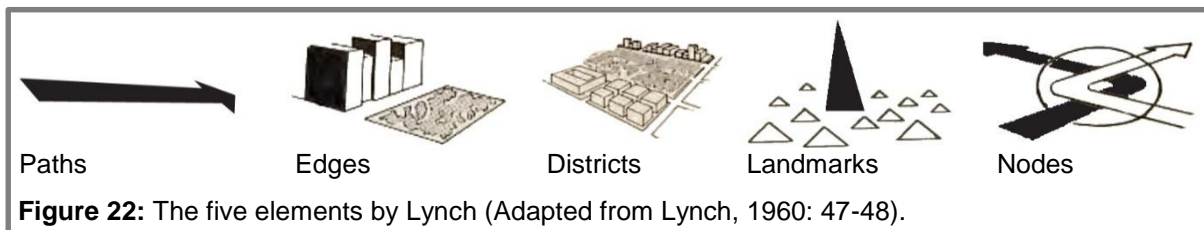
Lynch implies that the elements which constitute the spatial structure are concrete things with character and meaning. He limits himself, however, to discuss the spatial function of these elements in more depth and merely touches on the meaning of the environment (Norberg-Schulz, 1980: 20). Nevertheless, the work of Lynch constitutes an essential contribution to the theory of place (Norberg-Schulz, 1980: 20).

Lynch (1960) mentioned, in his most profound work – "The Image of the City", that a city's overall image is defined by the identifiable nature of its constituent parts and the grouping of these parts into an overall pattern. A distinctive and ordered environment can assist the inhabitant to orient himself within the overall physical context, group parts of the city accordingly, and more importantly to this discussion, acquire a sense of security as he can relate to the surrounding environment (Sternberg, 2000: 271).

This can serve as a broad frame of reference for the environment's inhabitants and helps to organise activity, knowledge and belief. It also plays a social role by furnishing our minds with raw material for the symbols and collective memories of group communication. Hence, the idea that the entire built environment should be made "imageable", allowing people to experience something that is familiar and distinctive, complying with the observer's mental image of the environment (Lynch, 1960: 7).

Therefore, despite the informality and continuity required in the adult learning environment, the overall structure should always relate to the users of the spaces. It should form a distinctive image in the minds of the learners, allowing for orientation and meaning, and should not allow learners to feel "lost" within the environment.

4.6.4 CONTINUITY AND CONNECTIVITY IN THE LEARNING ENVIRONMENT

The human possession of the environment is achieved if the journey from one node to the next, or passing through nodes, in a one-directional nature is determined

by the purpose and image of the environment (Norberg- Schulz, 1974, cited in Miller, 2011: 28).

Major paths need to have a strong identity, so as to avoid confusion between one path and the other (Lynch, 1960: 52). Paths with strong identities have defined origins and destinations, assisting in tying the environment together, allowing the user to orient himself whenever he crosses them (Lynch, 1960: 54). A few important paths may be grouped together as a single image, despite any minor irregularities, as long as they have a consistent relativity to one another, creating a distinctive environmental image (Lynch, 1960: 52).

Paths which are identifiable should also suggest "continuity", as this is a fundamental quality of a path as well. The fundamental requirement is that the actual track, or bed of the pavement, go through; the continuity of other characteristics is less important (Lynch, 1960: 52).

Paths may not only be identifiable and continuous, but possess directional quality as well. Paths should be in one direction caused potentially by a gradient, or a regular change in some quality which results in the path being in one direction (Lynch, 1960: 54).

Figure 23: Paths (Adapted from Lynch, 1960: 52, 54).
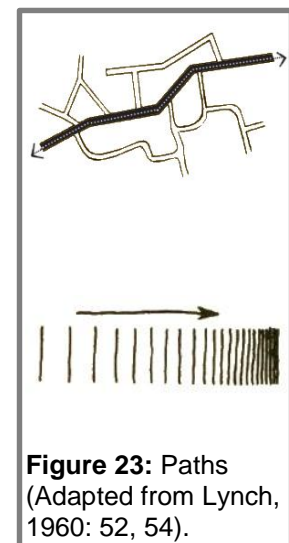
Paths are not only in a linear fashion, but can have curvature as well. A prolonged curve is also a gradient, a steady change in direction of movement (Lynch, 1960: 52).

Therefore, there should be mobility as groups of learners should be able to move from theoretical to practical, to informal learning spaces, and beyond without disturbances or obstructions. While formal spaces accommodate for each kind of activity independently, it makes more sense to construct spaces that can be flexible and connecting, allowing for a flow from one activity to the next.

Paved quads and streets are paths that provide a space for physical and social actions. A bridge is also a kind of path, connecting spaces of which are disconnected. Paved quads or bridges, along with other forms of landscaping such as trees and gardens, may be used in such a way as to integrate the adult education and training centre (Edwards, 2000, cited in Hartl, 2008: 42). This being that such elements have connective attributes.

Figure 24: Connective elements at Thekwini FET College (Cato Manor campus) (Author, 2014).

Figure 25: Connective elements at O. P Jindal Institute of Technology and Skills (Adapted from A Spatial Dialogue, 2010: 133).
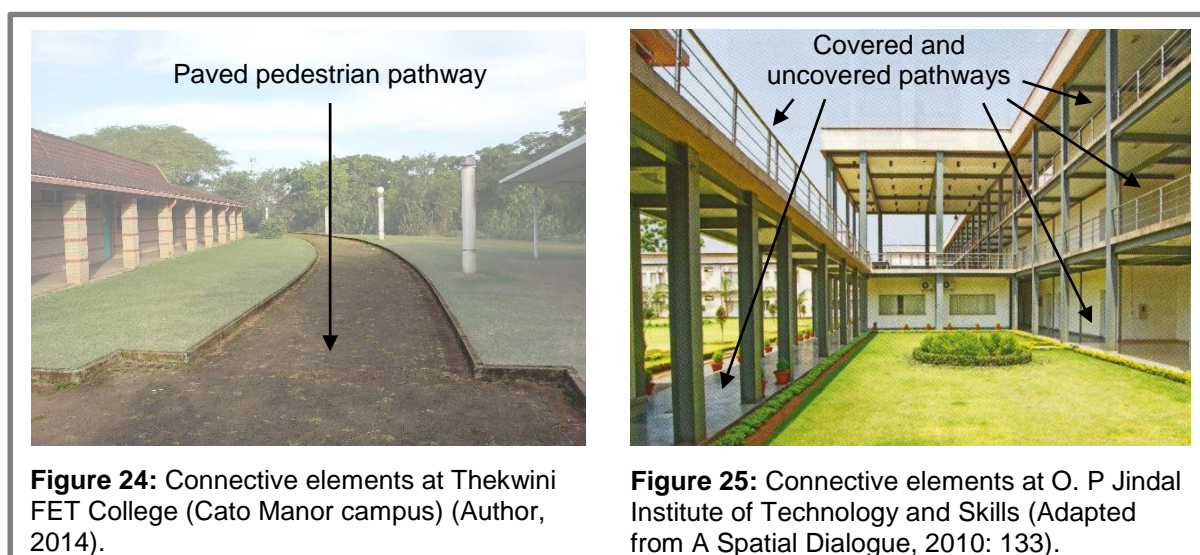
4.6.5 THE IDENTITY AND CHARACTER OF THE LEARNING ENVIRONMENT

Most organisations make use of existing facilities which were not originally designed for adult learning, and therefore struggle to accommodate for the specific needs of the adult learners, and for productive skills development. There are just a few adult education centres operating in South Africa of which were designed for their purpose. However, these centres are generally located in isolation within the communities in focus (townships). This causes the centres to lack identity, as well as character of an interactive campus environment.

The proposed education and training centre should be centrally located, being accessible on a regional level. People from far and wide should be attracted to the adult education and training centre of which pushes the boundaries of vocational training centres in the country; both functionally, as well as aesthetically. The proposed centre should have a strong identity and possibly serve as a landmark for the diverse surrounding society (Hartl, 2008: 39).

Landmarks are physical elements which are clearly identifiable within a context, and may vary extensively in size or scale. The main physical attribute of a landmark is

"singularity", having some aspect which is distinctive or memorable in the context (Lynch, 1960: 78). Landmarks become more easily identifiable and more likely to be classified as significant if they have a clear form, have a figure-background contrast, and if there is some prominence of spatial location (Lynch, 1960: 78).

Spatial prominence can allow the centre to be distinguished as a landmark in either of two ways: by setting up a local contrast with nearby buildings or making the centre visible from many (potentially distant) locations (Lynch, 1960: 80). It can act as an external reference point with regard to navigation in the broader cityscape (Edwards, 2000, cited in Hartl, 2008: 39). By either punctuating the skyline or being identifiable in another manner, passers-by should immediately identify the building, even when viewed from quite a distance. A single element could possibly catch the eye or punctuate the skyline, of which will allow it to be viewed as a landmark (Hartl, 2008: 39).

Norberg-Shulz (1980), states the relationship of man to place goes beyond the fact of orientating oneself to their surroundings. As Lynch (1960) explains, it has to do with a much deeper process of identification, implying that both place and environment need to work in correlation to one another in creating a defined character, distinguishing one place from another lending to a place its "genius loci" (Lynch, 1960: 64).

Robert Venturi mentioned that generally the overall character of a group of buildings which forms a collective built environment, is condensed in characteristic architectural elements. Such elements serve to transpose a character from one place to another (Norberg-Schulz, 1980: 15). Character is the product of interactions with the surroundings, which strengthens the centralization of the space and the need for belonging. Any real presence is intimately linked with a character. Different actions demand places with a different character, and so the adult learning environment needs to have a specific character (Norberg-Schulz, 1980: 14).
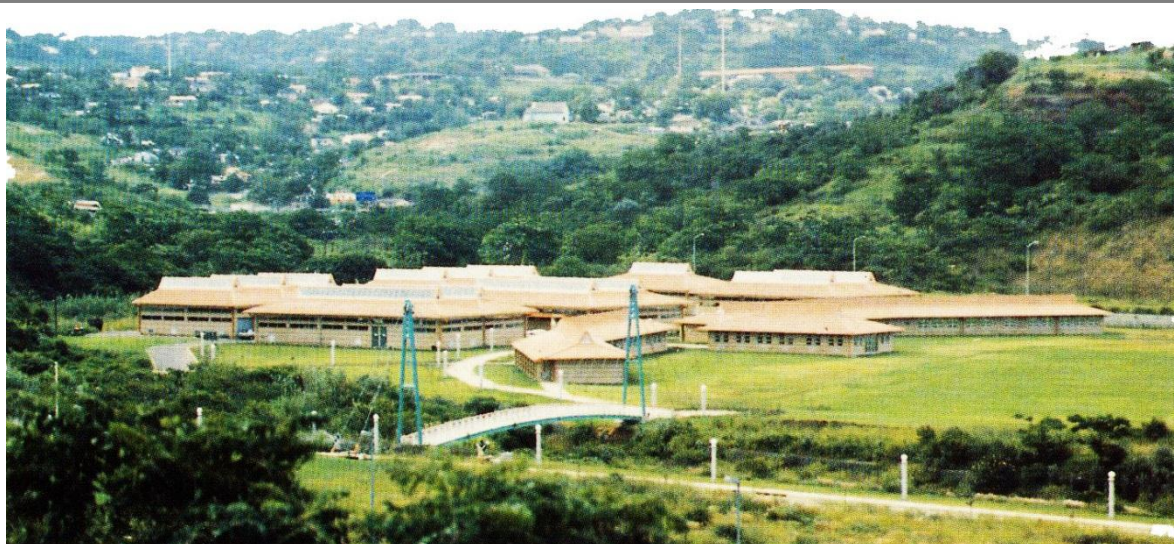
Figure 26: Domestic-like character of the Engineering Training Centre at Thekwini FET College (Cato Manor campus) (New Cato Manor Technical College, 1994: 15).

On that note, the symbolism or functionality associated with the building may also result in it becoming a landmark. Once a piece of history, a sign, or a meaning is attached to a building, its value as a landmark rises (Lynch, 1960: 81). The centre should be symbolic of a transitional adult education and training centre, epitomising its character and philosophy within the larger campus environment in a potentially urban context.

It is important that the adult education and training centre has and maintains strong relationships to the urban context, as well as the community/society, in order to provide longevity to the scheme (and thereby to the learners' progression in life) and provide distinctive and distinguishing characters to a region.

4.6.6 CONCLUSION

It is of utmost importance to provide a comfortable environment for adult learners to create meaning and experiences, irrespective of the functions, assisting in motivation to learn and cognitive gains.

The structure of the learning environment should create, and maintain, an environmental image in the minds of the adult learners. The informality and continuity in the learning environment should not allow the learners to become lost, still affiliating themselves with the entire built environment. This can be achieved by the use of distinctive paths for connectivity.

The adult learning environment also needs to display a character, embracing qualities of "interaction" and "openness". The use of landscaping (paving, trees and gardens) can assist in this regard, connecting with the adult education and training centre.

4.7 CONCLUSION

It is of certainty that South Africa needs to accommodate for education and training within the educational structure which stresses on long-term development and progression, irrespective of the economic calamities of the past. The ability to "experience" the learning within the built learning environment is a means of moving in the right direction.

Adult learners have very diverse attributes compared to other categories of learners. Such attributes do not restrict, but rather contribute towards the rationale for an experiential learning environment. Their vast experiences needs to assist in the learning processes by creating new and ongoing experiences. Active involvement in the learning processes, be it theory or practical learning, should be evident throughout the learning environment – suggesting informality.

Theoretical and practical learning spaces should not be organised to suite passive learning, but rather emphasise on active learning. This can be achieved by different space and furniture configuration of the traditional classroom, as well as the introduction of various activities which are not generally affiliated with adult education – which require specific space and furniture configuration for active learning and involvement by learners. The practical learning spaces should emphasise on the method of simulation and minimal demonstration.

Learning experiences can also be created by collaboration and interaction with other learners, be it in the formal or informal learning space. The spaces should attract social nodes together, making the space highly collaborative with multi-dimensional transfer of knowledge and skills. Informal learning spaces should be defined in order to encourage such activity to stem from the formal learning spaces.

Learning is often a functional activity, yet can be achieved with the absence of function. The built learning environment should create a connection with adult learners, allowing the learners to create meaning and possibly experience the built environment. The built environment should be relative to the human scale and possibly allow for personalization of spaces. It should form a collective entity which should be legible to adult learners – having defined connections by means of paths.

The literature review assists in providing principles towards the design of an adult education and training centre. These principles are tested within specific built environments – precedent and case studies - in the following chapters.

CHAPTER 5:

KEY PRECEDENT STUDIES

5.1 INTRODUCTION

It involves the analysis of four existing successful built environments located abroad, which relates to the theories and concepts.

The chosen precedents (built environments) are located beyond the boundaries of South Africa, with particular emphasis on international vocational training centres, but not fixed to this building typology.

The first precedent study is of a vocational training centre (reused building) located within the campus setting in an urban context in Canada. The second precedent study is of a vocational training centre located within the campus setting in an urban context in India. The third precedent study is of an experimental town which is constantly being developed within a desert in the United States of America. The fourth precedent is of a public library/media centre in the urban context in Japan.

All four precedents present specific elements that are relevant to the design of a centre for adult education and training either in terms of concept, structural systems, spatial arrangements and components, or specific details.

5.2 PRECEDENT STUDY 1: COLLEGE OF NEW CALEDONIA – JOHN A. BRINK TECHNICAL TRADES AND TECHNOLOGY CENTRE

Location: Prince George, British Columbia

Architect: McFarlane Green Architecture and Design

Completed: 2005

5.2.1 INTRODUCTION

Ever since 1969, the College of New Caledonia (CNC) has offered a variety of university credit, vocational, technical, as well as general interest programmes to learners in British Columbia's central interior. Residing on the outskirts of the city of Prince George is the main campus. This part of the city is characterised by large-scale box-like retail stores and other vehicle-orientated uses (Taggart, 2006: 39).

Realising the necessity to bring several of its trade schools under one roof, the college intended to create a campus expansion. With this rationale, the college acquired the property of a retail store and auto repair shop immediately adjacent to the CNC campus (Taggart, 2006: 39).

Figure 27: View of the east-side entrance - illustrating the wood screen (connecting element) (Taggart, 2006: 42).

Figure 28: View of the main entrance - illustrating the wood screen (connecting element) (Taggart, 2006: 39).

The Precedent meets the criteria for selection by relating more-so to:

- Active Involvement in Practical Learning Spaces
- Social Connections in Intermediate Spaces
- Humanistic Design – thereby Connecting with the Users
- Legibility and Orientation

- Connectivity with the Existing Campus

5.2.2 CHALLENGES AND RECOMMENDATIONS

Given the change in building typology, there were huge overriding architectural and urban design challenges presented by the project. The existing structure was an over-scaled industrial-like shell with an almost windowless envelope in which the only significant glazing was at the main entrance lobby. Over time, several additions and renovations had left the building with a hybrid structure, with the exception of the retail floor itself, a labyrinth of partitioned spaces. The minimal connection with the exterior was further emphasized by large setbacks for parking which isolated the building from its surroundings. (Taggart, 2006: 40).

The lead architect, McFarlane Green, set out four key design initiatives for the project – the rationalisation of interior space in order to improve legibility and create order; improving the learning conditions within the spaces by introducing natural light into the enclosed structure wherever it was possible; the creation of an intermediate meeting and social space to facilitate interaction between learners; and an urban initiative by creating a connection to the existing campus and responding more appropriately to the sites urban context (Taggart, 2006: 41).
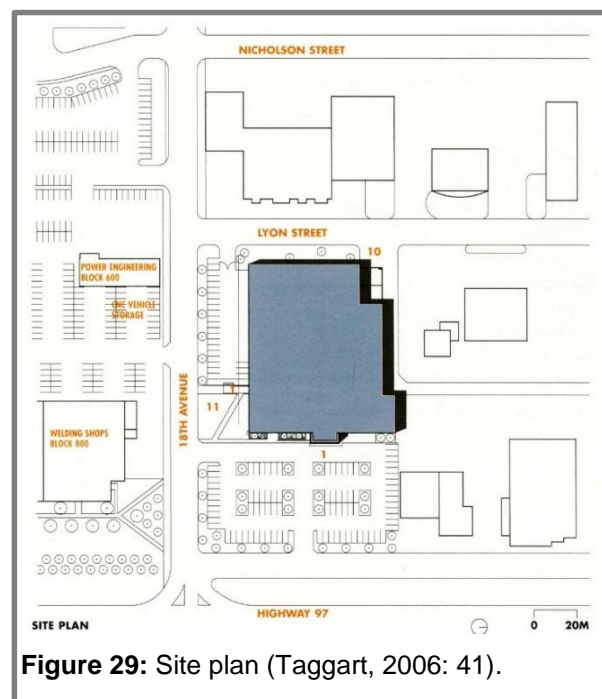
Figure 29: Site plan (Taggart, 2006: 41).

5.2.3 HUMANISTIC DESIGN AND THE BUILDING FABRIC

Due to the modest budget, the architects decided to work with an uncompromising material palette and industrial detailing of the existing structure, deeming it was acceptable for a trade school (Taggart, 2006: 41). This enabled them to focus their attention on the careful detailing of interior spaces, especially those which would encourage interaction. Elements were used to create a human scale

within the larger existing box, and a refined contrast to the rugged external environment (Taggart, 2006: 41).

Budgetary restrictions meant that new perimeter windows could not be catered for within the heavy masonry construction of the existing exterior walls (Taggart, 2006: 42).

Therefore natural lighting was introduced into the central corridor (thereby assisting in illuminating the learning spaces alongside) via three large skylights in the ceiling (Taggart, 2006: 42). This initiative further assists the enclosed practical learning spaces by preserving valuable wall space for shelving and displays (Taggart, 2006: 42).
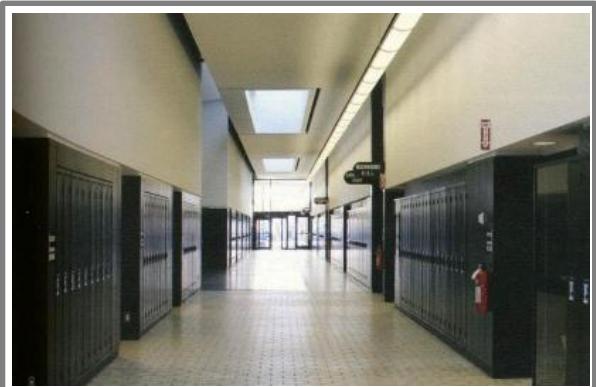
Figure 30: Natural light introduced into the central corridor via skylights (Taggart, 2006: 41).

5.2.4 SPATIAL ORGANISATION AND LEGIBILITY

The building provides for a range of practical activities, including specialised shop areas for carpentry, wood technology, electrical training, auto–repair and customised industry training. Such spaces allow for "experiential learning" through the ability to be actively involved in the formal training. There are also theoretical learning spaces such as classrooms which are more traditionally inclined. Furthermore, faculty offices are provided as well (Taggart, 2006: 40).

In plan, distinct circulation routes allow for major programme areas to be situated systematically, creating a legible image of the environment. Such routes connect to the two main building entries. The simple and orderly plan allows for simple reconfiguration in the future, if needed (Taggart, 2006: 41).

Figure 31: Legibility of floor plan (Adapted from Taggart, 2006: 40).

WORKSHOP AREA

CLASSROOM AREA

ADMINISTRATIVE AREA

LANDSCAPED AREA

1 ENTRY
2 CAFÉ
3 OFFICE AREA
4 CLASSROOMS/MAIN CORRIDOR
5 AUTO REPAIR SHOP
6 ELECTRICAL LABS

7 ELECTRICAL SHOP
8 CARPENTRY SHOP
9 FUTURE EXPANSION
10 LOADING
11 OUTDOOR SEATING

GROUND FLOOR
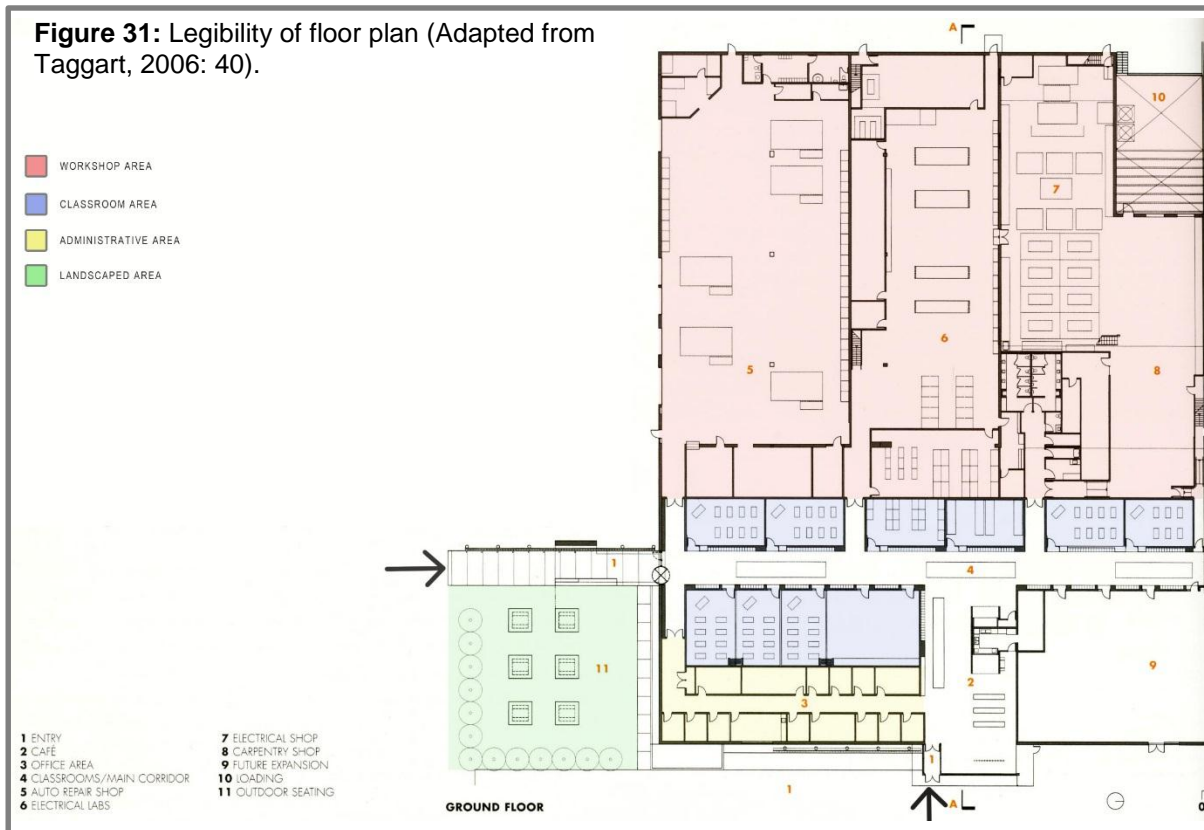
Theoretical and Practical Learning Spaces:

The shop areas are designed to maximise their available open space, allowing for equipment reconfigurations as the need arises. The use of fir plywood casework and benches create "warm" shop spaces, not just by the choice of material, but also the colour/tone used (Taggart, 2006: 42). This helps to stimulate and uplift learners, keeping them attentive.
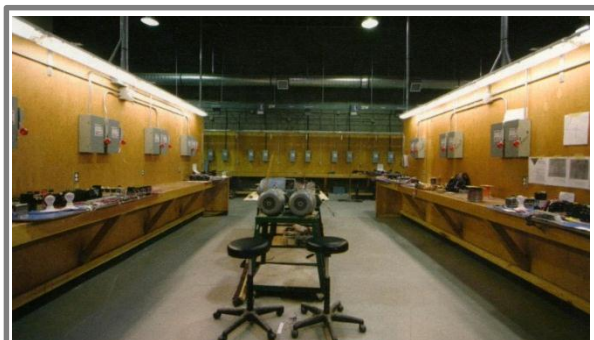
Figure 32: Typical workshop space with individual spaces for learner training (Taggart, 2006: 41).

The practical shop spaces (grouped to the west) are separated from the quieter classroom spaces by an acoustic buffer of storage and service spaces. The shops' entry portals offer a distinct image, suggesting precaution upon entry due to the potentially unsafe environment beyond. Classroom spaces are multi-function and adaptable as they are shared and used by all of the various trades divisions. Faculty offices are grouped around, and create a visual connection with, a shared glazed meeting area to support social interaction amongst the staff (Taggart, 2006: 42).

Informal Learning Spaces:

The centre of the building accommodates for communal, interactive spaces such as a lounge, cafe and gallery area, where it is hoped that informal learning could occur here as well. The freestanding cafe serves as a human-scaled object within a large central volume of the larger building envelope (Taggart, 2006: 42).

Figure 33: Communal space within the central corridor (Taggart, 2006: 41).

5.2.5 ACCESSIBILITY AND CONNECTIVITY WITH URBAN/CAMPUS CONTEXT

A new entry vestibule attracts and accommodates for students approaching from the heart of the main campus via a continuous illuminated wood screen (cedar fencing) and an open-ended canopy. This serves in anticipation of the future extension of the campus. The screen is used externally to humble the iconic image of the original building, and assists in forming a continuous street or path as a connecting element to the main campus, which filters through to the main internal corridor/street of the building. The existing entry on the east side provides access for those approaching from the parking area (Taggart, 2006: 42).
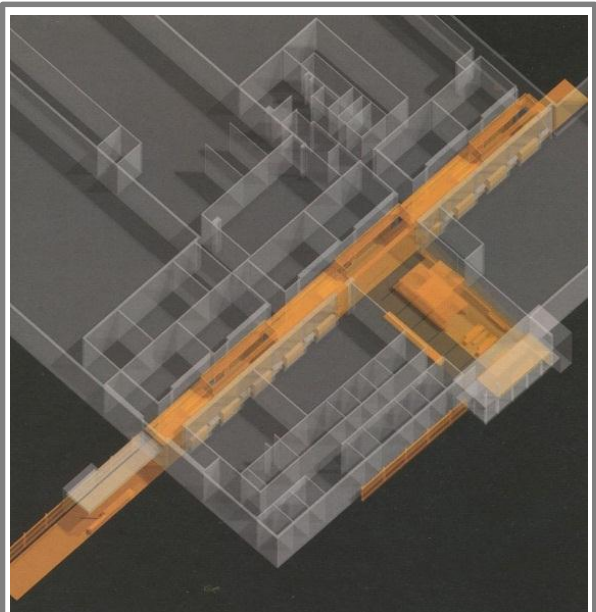
Figure 34: The defined internal street – connecting with the campus (Taggart, 2006: 40).

5.2.6 CONCLUSION

The building is a successful re-use project, given that it was a dramatic change in typology –from industrial to a trade skills and technical school (educational). It maximizes the available internal space for theoretical and practical learning (of which

are separated), as well as intermediate social spaces and defined corridors - creating connections and continuity within the learning environment. In entirety, this creates a legible learning environment – one that the learners can orient themselves within.

The introduction of natural lighting into the internal spaces from above creates an ambient learning environment, of which would have been potentially unbearable to learn in (without excessive artificial lighting).

Furthermore, it responds positively to the urban context and the main campus close by, being highly accessible and emphasising on the physical connection with the campus and the surrounding environment.

5.3 PRECEDENT STUDY 2: O. P JINDAL INSTITUTE OF TECHNOLOGY AND SKILLS

    Location: Raigarh, India

    Architect: ACPL Design Ltd

    Completed: 2008

5.3.1 INTRODUCTION

The institute of technology and skills is one which is spontaneous and inviting, forming a frame around students, professors and the researchers of the institute. It is a building in spatial dialogue with its surroundings and at the same time, responding to the city by opening up and allowing the institute activities to interact as an asset to the neighbouring space (A Spatial Dialogue, 2010: 133).

Figure 35: The interaction between the institution and the outdoors (A Spatial Dialogue, 2010: 138).

The building is situated within a campus context, of which becomes not only a place to lodge at (having hostel buildings), but also a space that leads the extra curricula activities of the institute for other kinds of education and research (A Spatial Dialogue, 2010: 133). The institute serves in accommodating for formal learning (theoretical and practical), informal learning (library), as well as other informal spaces for the opportunities of socialising and learning.

Figure 36: Site plan of the campus – highlighting the institution (Adapted from A Spatial Dialogue, 2010: 132).
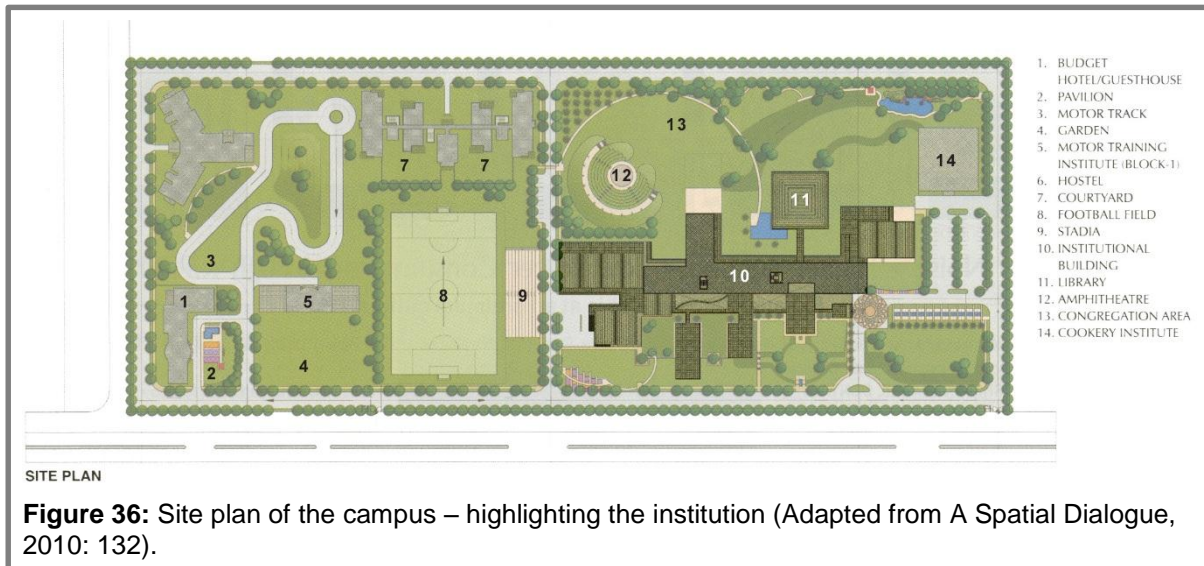
The Precedent meets the criteria for selection by relating more-so to:

- Defined Internal Spaces for Social Connections
- Legibility and Orientation
- Connectivity and Continuity

5.3.2 STRUCTURAL FORM AND CHARACTER

Exposed steel sections have been used throughout the structure, with painted masonry walls. This assists in exposing people to another world of expression, one that has no barriers and is interactive with society. Majority of the building's roof covering comprises of concrete flat roofs, except for the vaulted roof on the workshop and indoor games area – of which are adjoining wings. The vaulted roof not only renders the skyline beautifully, but also blends well with natural ground undulations and allows glare-free light into the work area. Homogeneity in disposition of materials and details integrate the whole campus and define its unified architectural character (A Spatial Dialogue, 2010: 138).

Figure 37: Rendered perspective of the institution - illustrating the character and forms (Adapted from A Spatial Dialogue, 2010: 136).

Figure 38: Front elevation of the institution (A Spatial Dialogue, 2010: 135).
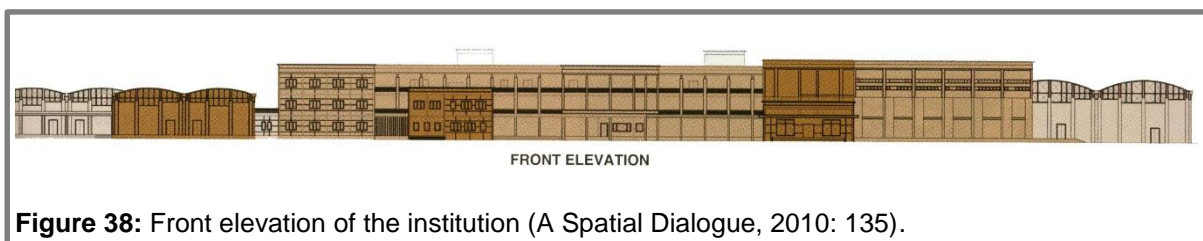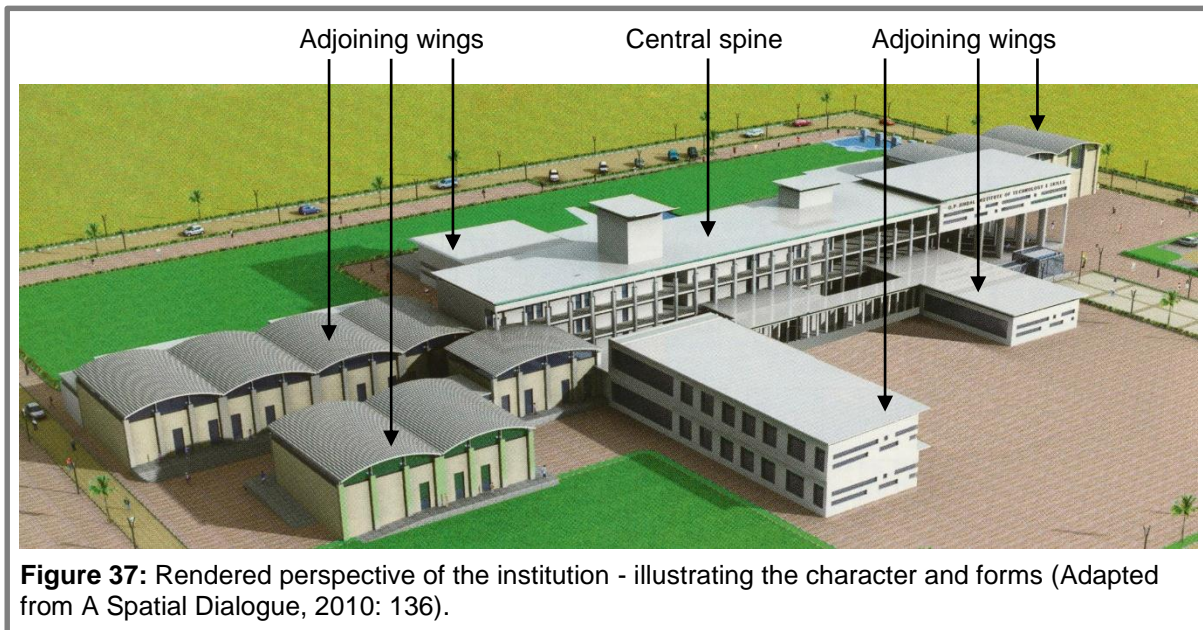
5.3.3 SPATIAL ORGANISATION AND LEGIBILITY

The institute is a double-storey building, having linear planning with adjoining wings ensuring clear demarcation of different departments and singly loaded corridors ensuring ample light and ventilation throughout the building. The concept of the design of the institute is that of a spatial network - a web in which each function is placed in a three-dimensional position along a central spine (A Spatial Dialogue, 2010: 136).

The double-height entrance space offers a complete view of the institute. From here it appears as a buzzing, spatial structure in which activities on all levels communicate with each other. Beginning at the main entrance, social and informal learning spaces are located within adjoining wings (forms) alongside the "spine" of the building. Each wing accommodates for a single-storey exhibition space, library, as well as sports complexes and cafeterias on both levels of a specific wing. Lecture halls, laboratories and ablution blocks are housed along the corridors on both levels.

Towards the opposite end of the building situates the more noise-making practical educational facilities, as well as administration. Each double-storey wing houses the administration offices, laboratories and workshop spaces respectively.

Figure 39: The large-volume workshop space with its vaulted roof (A Spatial Dialogue, 2010: 138).

1. LAB
2. WORKSHOP
3. ADMINISTRATION
4. EXHIBITION
5. MAIN ENTRANCE
6. LIBRARY
7. SPORTS COMPLEX
8. CAFETERIA

GROUND FLOOR PLAN

1. LAB
2. WORKSHOP
3. ADMINISTRATION
4. LECTURE HALLS
5. TERRACE
6. EXHIBITION
7. SPORTS COMPLEX

FIRST FLOOR PLAN
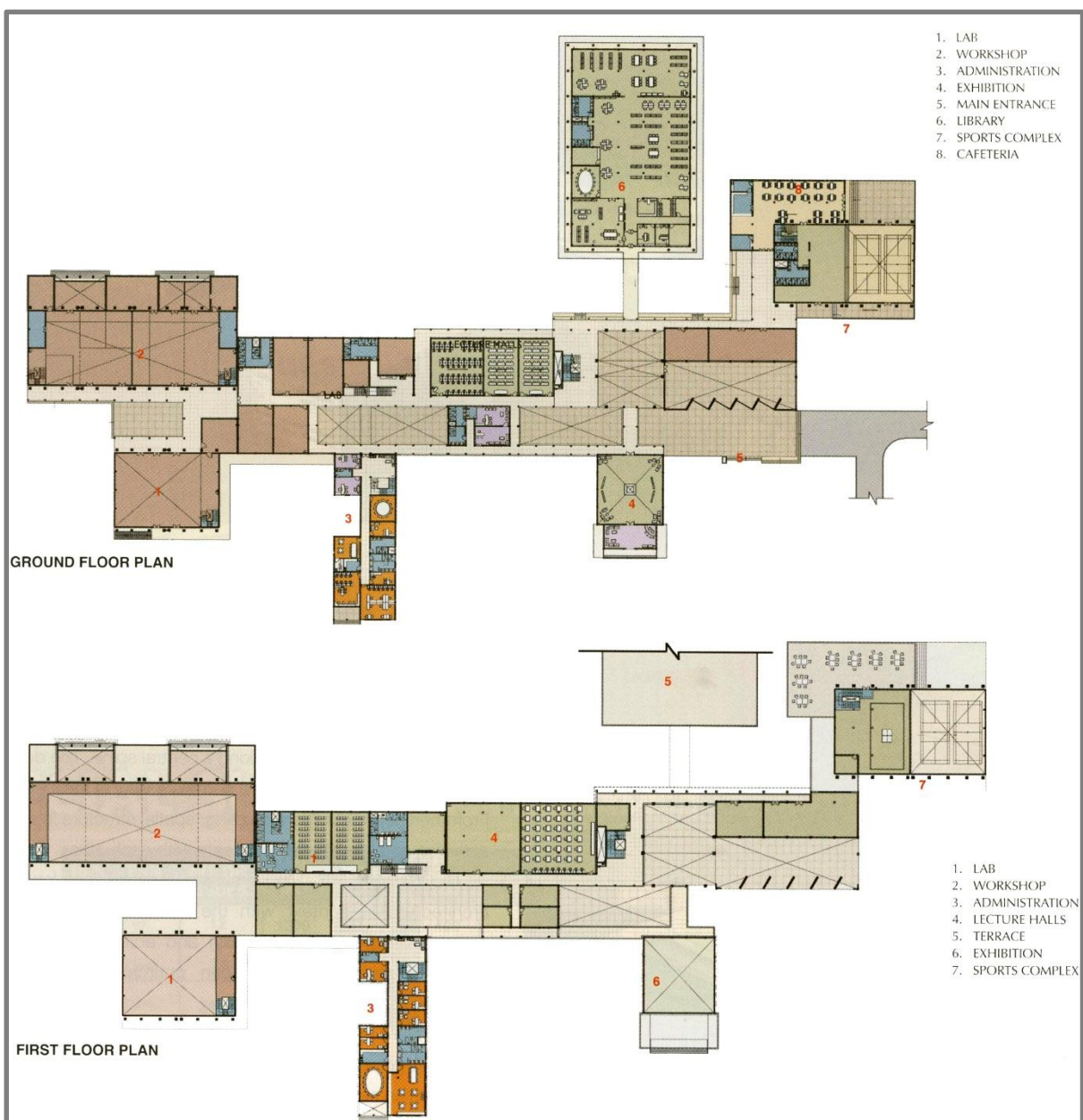
Figure 40: Floor plans illustrating the spatial arrangement and concept (Adapted from A Spatial Dialogue, 2010: 135).

5.3.4 THE SPATIAL DIALOGUE BETWEEN INTERIOR AND EXTERIOR SPACES

The institute is a work that translates space of the land or landscape as an architectural one. It breaks away from the space architecture has made in general. From this perspective, landscape created is neither interior nor exterior but simply an extension of the geography, and is an abstracted geography of the land (A Spatial Dialogue, 2010: 133).

The lecture halls, multi-purpose classrooms and faculty research centres are placed in order to create an open plaza which serves as the central outside space for socialising and interacting between educational facilities. The stairs and corridors extend to the exterior of the buildings and students are able to move from classroom to classroom while viewing the scenery of activity in the courtyard. While journeying through the internal corridors, learners are able to take in the visual shifts and diverse spatial experiences (A Spatial Dialogue, 2010: 133).
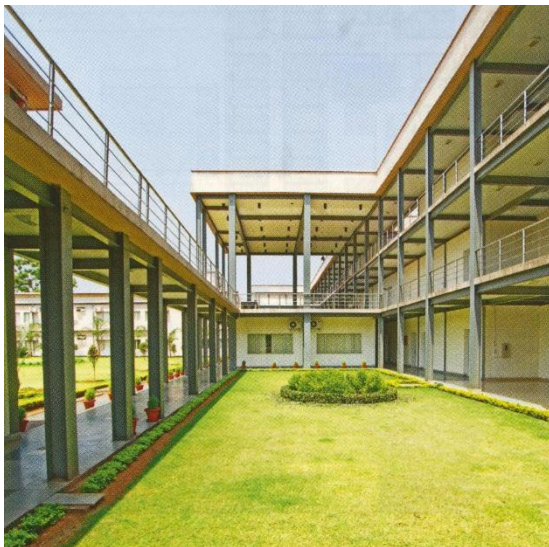
Figure 41: Internal courtyard serving as a social space stemming from the formal learning spaces alongside (A Spatial Dialogue, 2010: 133).

Figure 42: Internal courtyard serving as a social space stemming from the formal learning spaces alongside (A Spatial Dialogue, 2010: 136).

5.3.5 THE "GREEN" SOCIAL INTERMEDIATE SPACES

The courtyard can be seen as an environmental device that combines the principles of perception, physics, and cultural psychology. It assists in creating an aesthetic language in which nature is reinstated as a beneficent force in architecture. The courtyard hence performs the multifunction of being a light well, a microclimatic generator, as well as a landscape element (A Spatial Dialogue, 2010: 136).

The environment consists of large landscaped areas, and this helps not only in reducing heat island effect, but also in the onsite infiltration of rainwater. The ground area consists of more than 50% grassed and vegetated land to increase porosity of the site. A conscious effort has been made to blend the landscape with the built masses (A Spatial Dialogue, 2010: 138).

5.3.6 BUILDING ORIENTATION AND NATURAL LIGHTING

As mentioned earlier, single loaded corridors ensure ample light throughout the building. With regard to orientation, the building has been oriented east-west. All the classrooms and library receives glare-free north light. The west sun is completely cut as there is no window or opening at west. All exterior shading systems have been designed to cut off heat, while getting in glare-free light (A Spatial Dialogue, 2010: 136).

5.3.7 CONCLUSION

The Institute of Technology and Skills forms a collective entity of semi-dependent buildings, allowing for connections to be made and thereby orientation for the learners.

Having a central "spine" with all the different parts of the "body" connected to it makes this building interesting and exciting, given that the parts (buildings) are of varying proportions and scales.

The learners and able to make discoveries due to the expansive connective elements throughout the building and the campus on a whole, with opportunities for social connections to be made at numerous well-defined, centrally located areas such as the internal courtyard spaces.

5.4 PRECEDENT STUDY 3: ARCOSANTI – URBAN LABORATORY

   Location: Arizona, United States of America

   Architect: Paolo Soleri

   Completed: Ongoing construction since 1970

5.4.1 INTRODUCTION

   In 1970, Paolo Soleri and his Cosanti foundation launched the Arcosanti project in the high desert of Arizona, seventy miles north of metropolitan Phoenix. Today, a dozen completed buildings used for current activities occupy a small portion of the full 860 acres of Arcosanti property (Cosanti Foundation, 2012).

Figure 43: Site plan of Arcosanti (www.ad009cdnb.archdaily.net/wp-content/uploads/2011/08/1313186953-image-26.jpg).
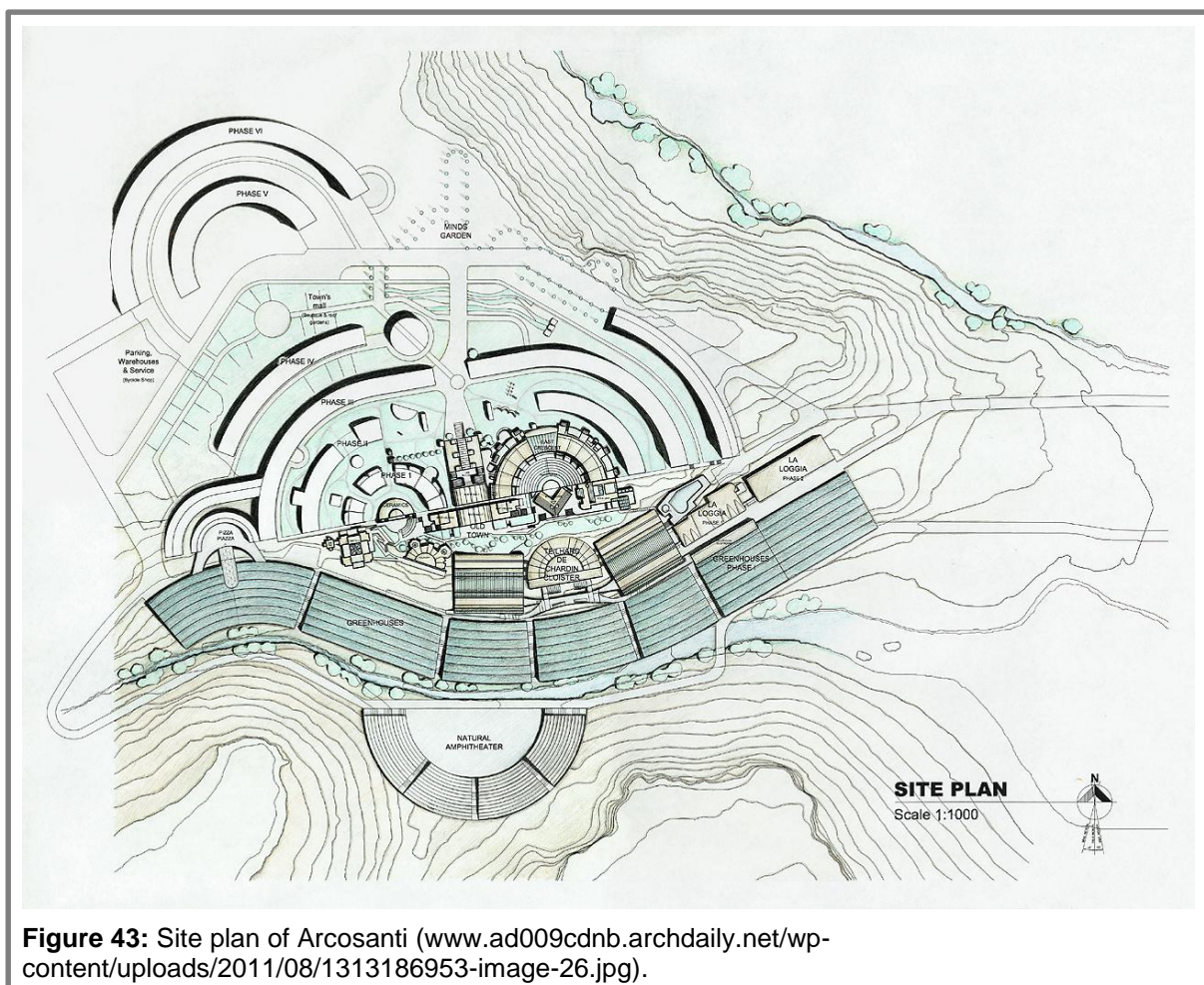
   It is an experimental and experiential town that serves as a prototype, exemplifying his steadfast devotion to creating an environment in harmony with man. The goal is to actively pursue lean alternatives to urban sprawl based on the theory by

Paolo Soleri of compact city design, called "Arcology" (combination of architecture and ecology) (Cosanti Foundation, 2012).

The Precedent meets the criteria for selection by relating more-so to:
- Active Involvement in the Learning and Development
- Community Development
- Meaning-making and Humanistic Design

5.4.2 EXPERIENTIAL LEARNING: TOWARDS AN URBAN FANTASY

Arcosanti is a continuously developing town which is slowly forming into an urban fantasy through community participation and development. Instead of learning in order to obtain employment, and thereby an opportunity towards a better way of life, Arcosanti serves as an ongoing learning and working construction project aimed at providing a better way of life to those involved in the project. The intensive workshop program educates students from abroad about "Arcology" while they participate and are actively involved in on-going construction – "learning by doing". The workshop program suggests a frugal commitment, in hope of encouraging a more equitable and sustainable development of the human experience (Cosanti Foundation, 2012).

Figure 44: Community development: learning and working on site (www.arcosanti.org).

Figure 45: Community development: learning and working on site (www.arcosanti.org).

The design provides an efficient and interactive urban environment by housing and connecting an array of different activities such as living, working, learning and leisure. By doing so, efficient and equitable access to most of the amenities of the city are available within minutes (Cosanti Foundation, 2012).

The society involved in the projects are provided with living spaces within apartment-like residences within the boundaries of the site.

The Arcosanti residents are diverse, working in planning, design, construction, agriculture, landscaping, carpentry, metal work, maintenance, archives, teaching, hospitality, and communications in order to make a living (Cosanti Foundation, 2012).

5.4.3 A MEANINGFUL AND SUSTAINABLE URBAN ENVIRONMENT

Arcosanti itself is a meaningful prototype, but it is very difficult to compare to any other city (Mero, 2012: 71). A major principle of "Arcology" is that in order to sustain the health of a city (which is seen as a living organism in itself with human activities), people should identity and define the ecological envelope as the carrying capacity of the environment. Opposed to sprawling development, the Arcosanti project emphasises on the need to "interiorize" by designing an urban condition with strict boundaries (Cosanti Foundation, 2012).

"Doing more with less" is certainly the goal of the project as much of it is achieved through the process of utilising and combining readily available materials from the natural environment. To accomplish "leanness" requires actual creative resourcefulness (Cosanti Foundation, 2012).

5.4.4 ACCOMMODATION AND STRUCTURAL FORM

The experimental town currently consists of a dozen completed large-scale built environments. Such built environments consist of: Crafts III, Ceramic Apse, Foundry Apse, East and West Housing, Vaults, Lab Building, Amphitheater, East Crescent, Soleri Office Drafting Unit, Guesthouse, and Swimming Pool.
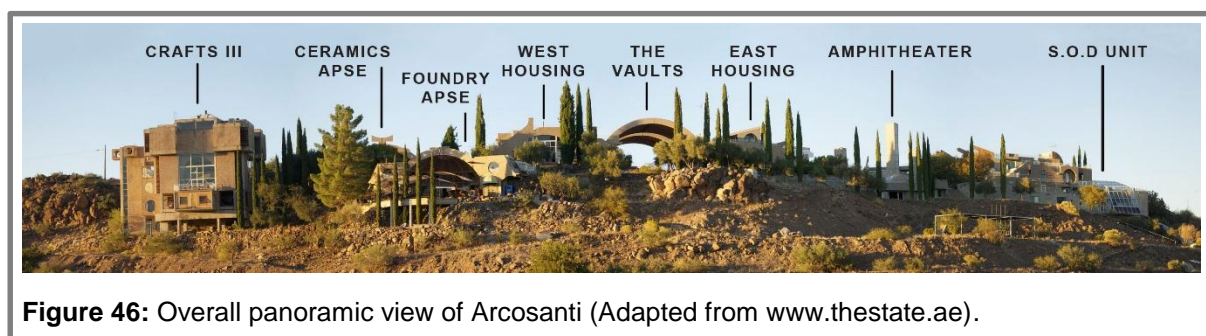
Figure 46: Overall panoramic view of Arcosanti (Adapted from www.thestate.ae).

All of the developments are built in concrete, being a combination of poured-in-place concrete and precast concrete panels (unless stated otherwise). Irrespective of the diverse form and shape of the buildings, the same construction methods are adopted throughout the town.

Crafts III Building:

Built in 1977, the building is a multi-purpose development and is primarily the Visitor's Center. It accommodates for housing on the first storey, a café on the second, a bakery on the third storey mezzanine, and a gallery on the fourth storey (Cosanti Foundation, 2012).

Figure 47: External view of the Crafts III building (www.nytimes.com).

Figure 48: The gallery within the Crafts III building (www.arcosanti.org).

Figure 49: The dining area within the Crafts III building (www.arcosanti.org).

Ceramics Apse:

An apse is an architectural term for a quarter sphere. The Ceramics Apse was completed in 1973 and serves in the production of ceramic wind bells and tiles at Arcosanti. The shape and direction (south-facing) of the development is a product of its eco-friendly design, creating a tempered micro-climate.

Figure 50: View of the Ceramics Apse (www.flickr.com).

The apse, the amphitheater terracing, and the removable stage combine to provide an impressive performance space (Cosanti Foundation, 2012).

Foundry Apse:

The Foundry Apse was completed in 1974, accommodating for bronze bell production and housing. It was initially designed with one level of housing. However, site excavation suggested a second level development and the structure was altered to include housing units encircling the rear of the apse (Cosanti Foundation, 2012).

Figure 51: View of the Foundry Apse (www.arcosanti.org).

Similar to the Ceramics Apse, the south-facing Foundry Apse takes advantage of the "Apse Effect" - one of the many passive solar features of the buildings at Arcosanti. It features a colourful silt-cast ceiling (Cosanti Foundation, 2012).

Figure 52: Bronze bell production within the Foundry Apse (www.mkenanphotography.wordpress.com).

The Vaults:

The South Vault was completed in 1972 and provides a large-volume, sun-protected work area with enclosed spaces alongside - landscaping "shed" on one side and a convenience store on the other. The Vault area serves as a space for a multitude of activities such as large work projects, performances, celebrations, large-scale meetings, and as a shaded area for outside summer activities (Cosanti Foundation, 2012).

Figure 53: View of the multi-purpose Vaults (www.ecoartusa.blogspot.com).

Being fairly large and viewed as a landmark on the site, the Vault required additional structural elements compared to the rest of the developments. The lower portions of the Vault were poured-in-place concrete, and the twelve upper curved panels were precast on silt and lifted into place via cranes. The panels are connected together with weld plates and a concrete beam on the top (Cosanti Foundation, 2012).

Constructed in 1975, the North Vault is an identical structure to the South Vault. The construction is similar with the exception of the steel beam replacing the concrete beam used on the South Vault (Cosanti Foundation, 2012).

The Amphitheater:

Named after Paolo Soleri's wife, the Colly Soleri Amphitheater was completed in 1989. It hosts a series of public musical events and is often rented out for private functions (Cosanti Foundation, 2012).
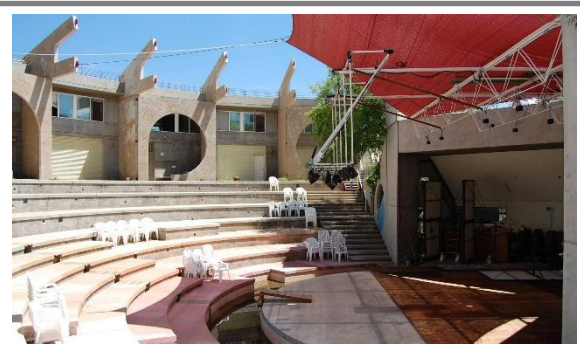
Figure 54: View of the Amphitheater (www.ecoartusa.blogspot.com).

5.4.5 A HUMANISTIC URBAN ENVIRONMENT

Human scale is generally recognized as physical proportion people can personally relate to. Urban scale results from having a densely organized human environment. However, when dense and efficient urban spatial arrangements are adopted for pedestrian mobility, such robust three-dimensional living can become human scale once again. The urban environment is designed for the human scale and attempts at creating a strong connection with society (Cosanti Foundation, 2012).

5.4.6 CONCLUSION

Arcosanti is a phenomenal initiative towards a meaningful city of the future, creating a close-knit community which is constantly being developed by being actively involved. However, not only is there a close connection between individuals, but also a connection to the built environment and the rest of the surrounding earth.

The 7000 individuals who have lived and worked onsite over the course of the ongoing 44 year project - participating in the active workshops offered at Arcosanti -

have assisted in turning the 22 books and thousands of drawings by the late Paolo Soleri into a physical reality (Mero, 2012: 70). Despite the history and many contributions to the effort, however, the town very much remains a work in progress towards the ultimate dream of the great mind of the architect, urban designer, artist, craftsman, and philosopher.

5.5 PRECEDENT STUDY 4: SENDAI MEDIATHEQUE

Location: Sendai, Japan

Architect: Toyo Ito

Completed: 2001

5.5.1 INTRODUCTION

Toyo Ito won an open competition to design a Mediatheque in the urban context of Sendai, north of Tokyo. The design initiative was for the building to be a democratic civic building, striving on information technology (Pollock, 2001: 190).

This public library/media centre intended on acting as a catalyst for community revitalisation, housing an array of different kinds of resources for the public to fully utilise within the city centre.

Figure 55: The building within the surrounding urban context (Pollock, 2001: 191).

The Precedent meets the criteria for selection by relating more-so to:

- Socially Constructed Learning
- Personalization of Spaces
- Vertical and Horizontal Connections

5.5.2 STRUCTURAL FORM

Three fundamental elements combine to form the building structure: plates, tubes, and skin. These elements consist of honeycomb slabs, unorthodox configuration of hollow tubes that run vertically through the building, and transparent or translucent exterior walls (Pollock, 2001: 192). In entirety, these elements form a transitional box-like architecture.
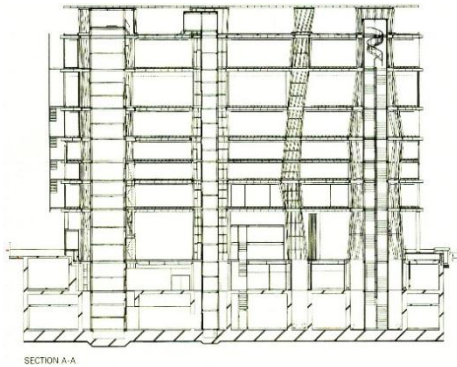
Figure 56: Section through the building (Pollock, 2001: 194).
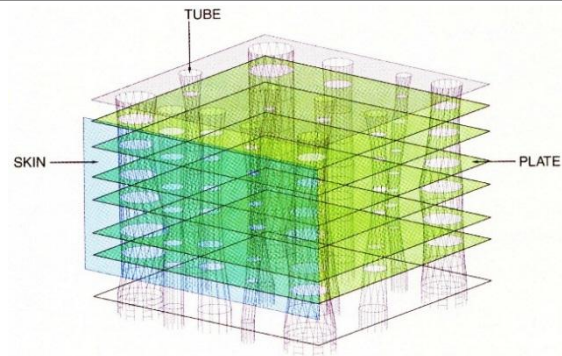
Figure 57: Diagram - illustrating the main structural components (Pollock, 2001: 193).

The Multi-functional Structural Tubes:

Visually, the most astounding feature is the structural tubes, of which is responsible for holding up the entire building. Each tube is differently shaped and irregularly placed, and they seem to undulate as they thread between floors - from basement to roof (entire building). This intricately calculated system allows for the floor spaces to be flexible – free of constraints (Pollock, 2001: 193).
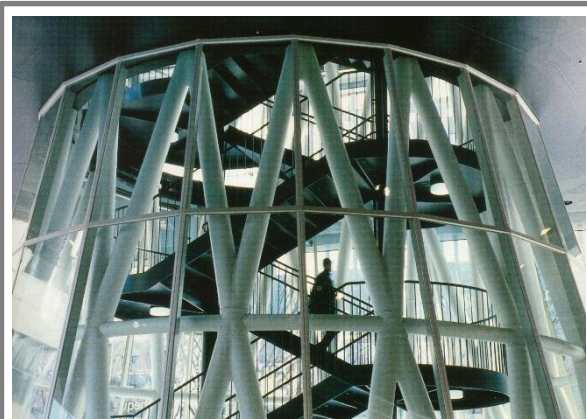
Figure 58: Vertical circulation of people within the structural tubes (Pollock, 2001: 201).

The tubes not only serve as structural, aesthetic elements, but are multi-functional in that they allow for vertically circulating air, water, electricity, light, and even mobility of people between floors – housing steel staircases within tubed configurations. Two enormous tubes guide light down into the centre of the building, ensuring that all informal learning spaces are sufficiently lit for reading and visual comfort, as well as limiting the amount of artificial lighting (Pollock, 2001: 192).

The Visually Connective Exterior:

The facades form a visually-connective link between the interior and the surrounding society, and it offers views over the city and of the mountains beyond (Pollock, 2001: 191). The east and north facades are composed of horizontal bands of transparent and semi-transparent glass and metal, exposing the diverse functions on each floor.
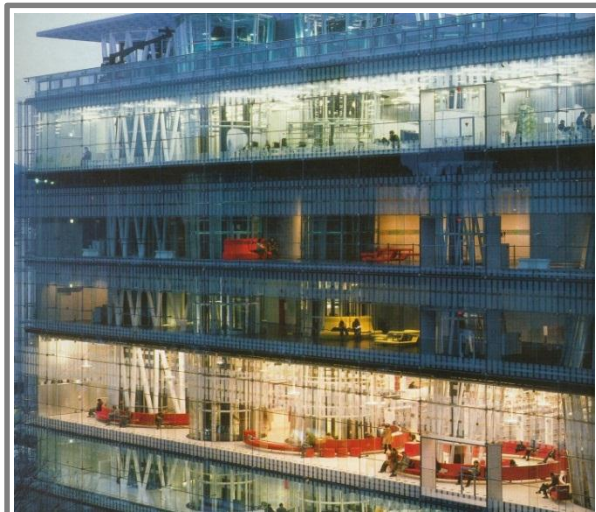
Figure 59: The visual connectivity of the exterior walls (Pollock, 2001: 190).

The south facing façade has two layers of clear glass with a wide air space that insulates the interior of the building in winter and draws hot air up and out in summer. The west side, however, is obscured by a lightweight metal, louvered screen, which conceals egress stairs upon the side of the building and a concrete wall behind (Pollock, 2001: 201).

5.5.3 SPATIAL ORGANISATION AND CONTINUITY

The ground floor features a multitude of spontaneous, social spaces such as an indoor urban plaza complete with a café, bookshop, and centrally located "open square" - that can be enclosed and used for exhibitions and other presentations (Pollock, 2001: 191).
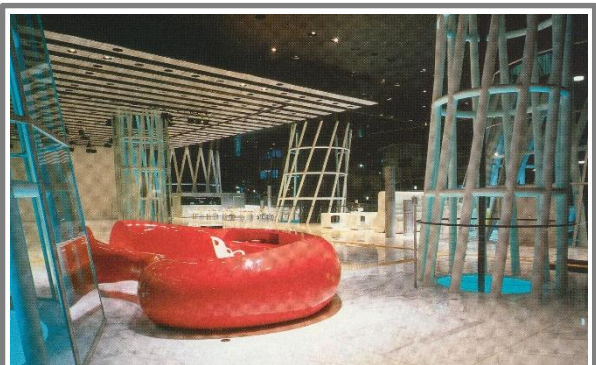
Figure 60: The social spaces on the ground floor (Pollock, 2001: 199).

From the ground floor, all paths seem to lead to an information centre on the second floor. The functional arrangement is open-planned with partial visual permeability by means of diaphanous screens. The double-height library is accommodated for within the third and fourth floors respectively and overlooks the street. The quiet study spaces are isolated at the back of the third floor, and the

reference section fills a fourth floor mezzanine. The lower level functions seem to be more socially active spaces as the uppermost floors house an audio visual centre, a 180-seater theatre, a conference room and an administrative area (Pollock, 2001: 191).

Though each level corresponds to a different mode of communication between people or between people and different types of media, "continuity" is emphasised as floors are easily penetrable – horizontally and vertically. Within each floor functional borders are blurred and fixed barriers are few (Pollock, 2001: 192).

Figure 61: Floor plans – illustrating the open-plan system of the library for physical and visual connections (Pollock, 2001: 194).
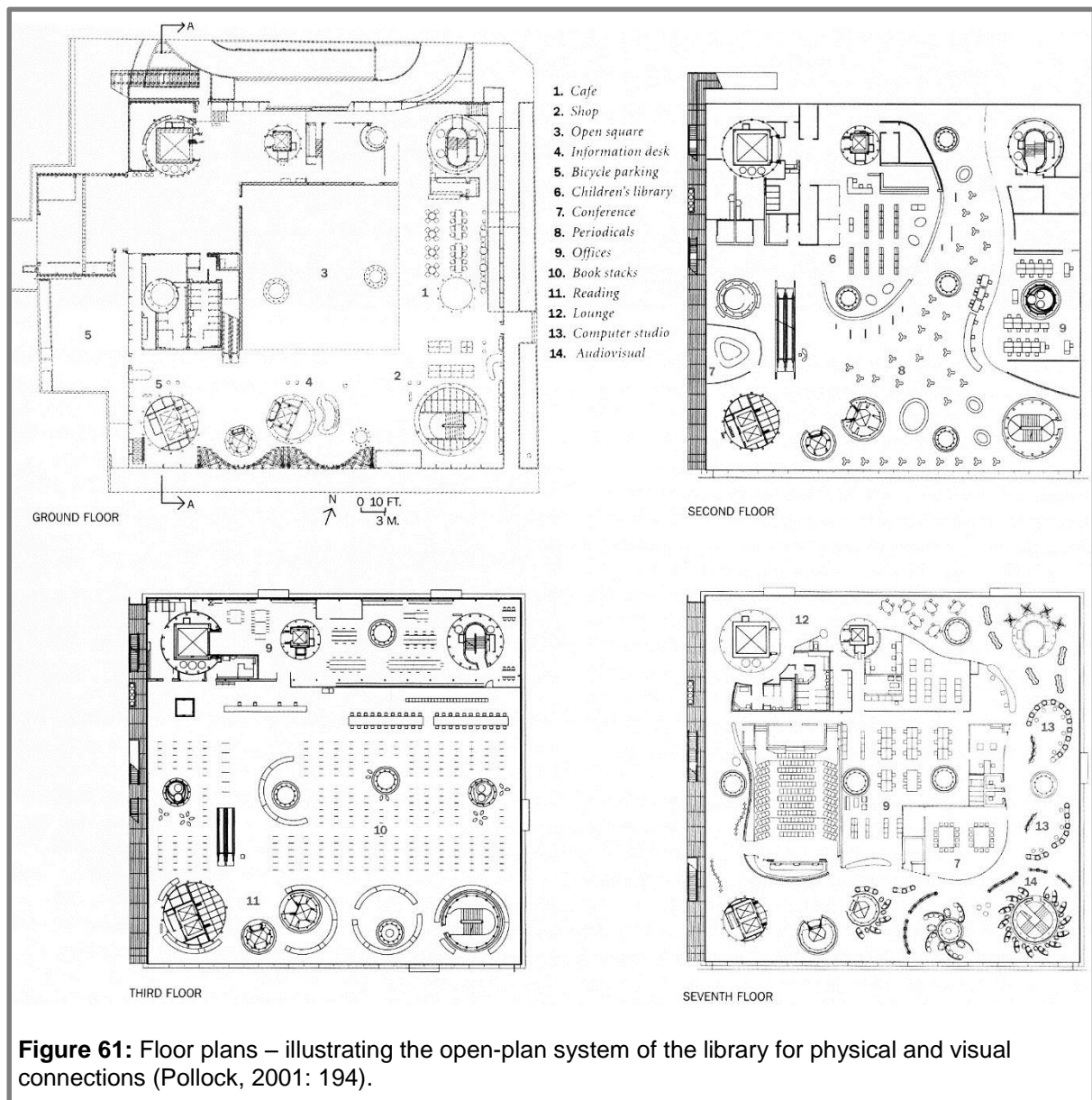
5.5.4 THE ADAPTABILITY AND PERSONALIZATION OF SPACES

With the available open floor spaces, Ito avoided boxy rooms and fixed partitions wherever possible by favouring glass panels, operable curtain walls, and temporary panels. The intention was to allow each learner to experience the spaces differently by discovering places and uses for themselves – thereby personalising the learning environment (Pollock, 2001: 199).

While the building's transparent or flexible walls act somewhat like furniture, on the other hand, its custom furniture acts almost as walls. Architectural in scale, the furniture assists in creating a sense of place, as well as underscore functional distinctions without limiting other possible uses (Pollock, 2001: 199). The elliptical tables and wheeled chairs, for example, animate the information centre's computer area, and the clover-shaped seating designates the periodical section. By contrast, the bright yellow seating for the art gallery and brilliant red reception desk on the first floor are whimsical and sculptural pieces that guide visitors through the building rather than mark territory (Pollock, 2001: 201). Together with different materials and lighting on each floor, the furniture helps establish a unique identity for each level.

Figure 62: The large-volume periodical section with its furniture configuration (Pollock, 2001: 200).

Figure 63: The furniture configuration and lighting within the information centre (Pollock, 2001: 200).

5.5.5 CONCLUSION

This building is successful in responding to the modern-day issues regarding education, specifically in public spaces. It is a perfect example of how architectural innovation, through the clever use of building materials, architectural elements and

innovative design, can house such a facility in an interesting, imaginative and cutting edge manner.

The building encourages community development as it houses an array of learning and social activities for everyone. It is not seen as complete, but rather constantly changing according to the different views and needs of the learners – catering for future changes in societal needs.

It responds well to the urban context, creating a strong connection with the highly-intensive surrounding context.

5.6 CONCLUSION

All four precedent studies allow the learners or users to experience the learning and the learning environment. The precedents serve as a means of developing society, specifically the adult population, either through education and training pertaining to skills development or education at the leisure of the learners.

The John A. Brink Technical Trades and Technology Centre and O. P Jindal Institute of Technology and Skills are part of larger campuses, contributing positively to the societies in focus, as well as to the urban context of which they are situated in. The John A. Brink Technical Trades and Technology Centre offers opportunities for active learning within the practical learning spaces by means of individual spaces and equipment for each learner. It also contains internal elements which are responsive to the human scale, despite the reuse of the building from a once industrial function. The precedents within the campus environments both have legible compositions of spaces, being organised around defined corridors which serve as social avenues. The defined central corridors help learners to experience the environments without getting lost, and also assists in separating the spaces of higher noise levels from those that are meant to be quieter. The corridors of the O. P Jindal Institute of Technology and Skills circulate around numerous internal courtyard spaces (for social interaction) which the formal learning spaces open out towards.

Arcosanti, on the other, is a developing town which can be viewed as an ongoing skills development program serving anyone and everyone who wants to be taught a skill and practice upon such skills in the real world. Arcosanti is a phenomenal initiative towards a meaningful city of the future, creating a close-knit community which is constantly being developed by being actively involved. However, not only is there a close connection between individuals, but also a connection to the built environment due to natural components used for the developments from the surrounding landscape.

The notion of community development is also clearly evident within the entire structure of the Sendai Mediatheque, as it houses a multitude of highly accessible and interlinking learning and social spaces on numerous levels which are open-planned and linked vertically at well-defined and calculated nodes of the floor plates. The idea of a large community of learners within the enclosure is expressed to the public realm by the transparent facades. Just like Arcosanti, the library is not seen as complete, but

rather constantly changing according to the different views and needs of the learners – catering for future changes in societal needs.

CHAPTER 6:

CASE STUDIES

6.1 INTRODUCTION

Case Studies involves in-depth analysis of the information gathered via the primary research methods and materials mentioned in chapter two. Two case studies are selected within the suburban and township contexts of KwaZulu-Natal, South Africa, which are adult education and training centres. The focus within these centres are on the education and training methods used, movement patterns of learners, and the architectural design decisions.

6.2 CASE STUDY 1: THEKWINI F.E.T COLLEGE (CATO MANOR CAMPUS) - THE ENGINEERING TRAINING CENTRE

Location: Cato Manor, Durban, South Africa

Architects: M. A Gafoor Architects

Completed: 1993

6.2.1 INTRODUCTION

The Cato Manor campus of the larger Thekwini FET College network is situated in the industrialized, undeveloped region of Cato Manor. The campus consists of just two complexes located on the northern and southern extremities of the campus, with a river flowing between the complexes – splitting the site into two zones. The Mechanical and Electrical Training Centre is located on the north side of the campus, with the Hairdressing and Hospitality Centre to the south. The original master plan suggested that the campus was designed to have a multitude of different complexes, as well as recreational facilities, resulting in a well-orchestrated proposal for the entire campus.

The Training Centre consists of a network of informally-placed facilities, connected together to form a distinctive complex with character – housing theoretical, yet predominantly practical learning spaces.
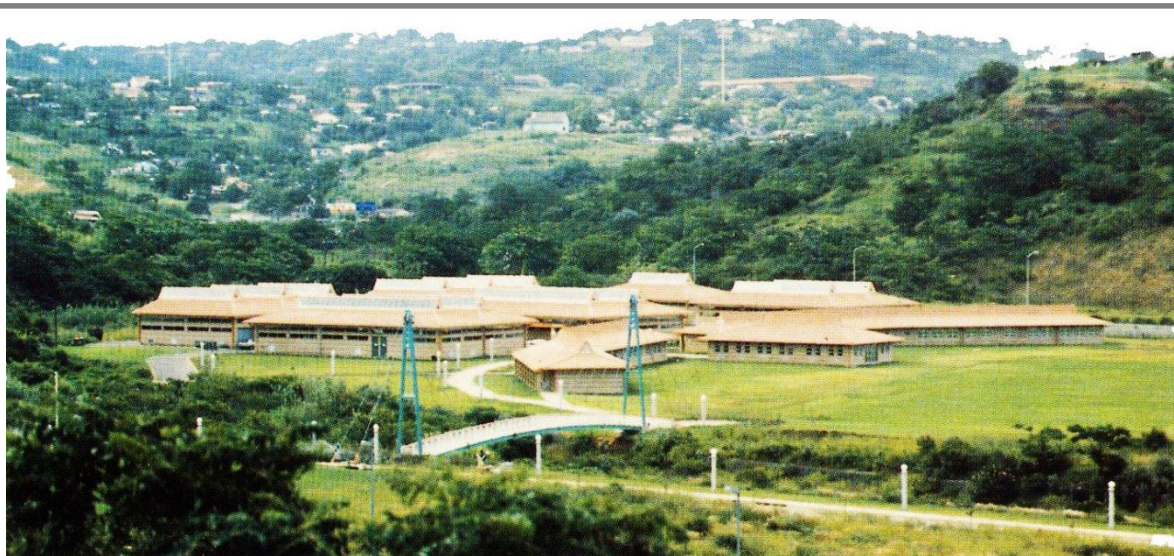
Figure 64: Perspective of the Engineering Training Centre (New Cato Manor Technical College, 1994: 15).

6.2.2 JUSTIFICATION OF CASE STUDY

The campus is part of a College which is classified as Further Education and Training in the country, accommodating for adult learners of whom require knowledge and skills towards a better life. The campus is one of merely a few FET Colleges in the country which were designed and constructed for the purpose of adult education and training.

The Training Centre accommodates for a multitude of theoretical and, more importantly, practical learning facilities – of which Engineering (numerous types) is the main program offered, being located within the Training Centre. As Engineering is to be one of the main skills offered in the proposal, it seems fitting to relate to and understand the design principles for such spaces.

The Training Centre has a variety of workshop spaces, suited for fully-active learning on the part of the learners, due to the teaching methods and facilities.

The Training Centre has a distinct character, forming a collective image, that being of a family of interdependent domestic-like buildings which is well suited for the community in terms of its social and physical context.

6.2.3 BACKGROUND AND ISSUES

The campus is part of Thekwini FET College, of which consists of six campuses in Durban. The Cato Manor campus was initially proposed as part of an updated campus for a new Durban College of Education, meant to replace the old Springfield College of Education. However, that idea became null and void and the campus was thereafter proposed as part of the Thekwini FET College (Informal Interview with Architect).

There was an extremely tight budget of R15 million for the entire development of the campus. A huge portion of this amount was to be compromised by the extensive civil works. In 1986, the site works and basic infrastructure (platforms, bridges, roads, sewers and stormwater). The realignment and stabilization of the Umkumbaan River had also been completed – of which punctures through the site (New Cato Manor Technical College, 1994: 15). All this work had been completed at a cost of approximately R11 million.

This left the remaining funds towards the proposed building developments of which comprised of training centres, student residences, and so forth, upon a

topography of largely contrasting gradients (Informal Interview with Architect). However, only two complexes were completed.

6.2.4 THE CLIENT

The Thekwini FET College is a government funded and managed initiative. The National Certificate Vocational (NCV) program is one of the programmes initiated nationally by government to address the needs for skills development in the country, and is utilised at the campus. The Training Centre is therefore funded mainly by the government.

6.2.5 HISTORICAL AND SOCIAL CONTEXT OF THE AREA

Cato Manor is a predominantly industrial area located just seven kilometers from the city centre of Durban, and is somewhat undeveloped. There are various neighbouring residential townships of which the nearest are Chesterville (0,5km to the north), and Bellair (2,5km to the south). The University of KwaZulu-Natal (Howard College campus) is a short distance to the east and is the nearest major non-residential development. Only isolated buildings and tarred roads remain among the dense trees and tangled undergrowth of the area.

The arrival and settlement of Indian market gardeners formed the region - what is known today as Cato Manor. This formation of the area began a short while upon it being named after the first mayor of Durban, George Christopher Cato, in 1865. The area attracted a lot of attention during the Apartheid era.
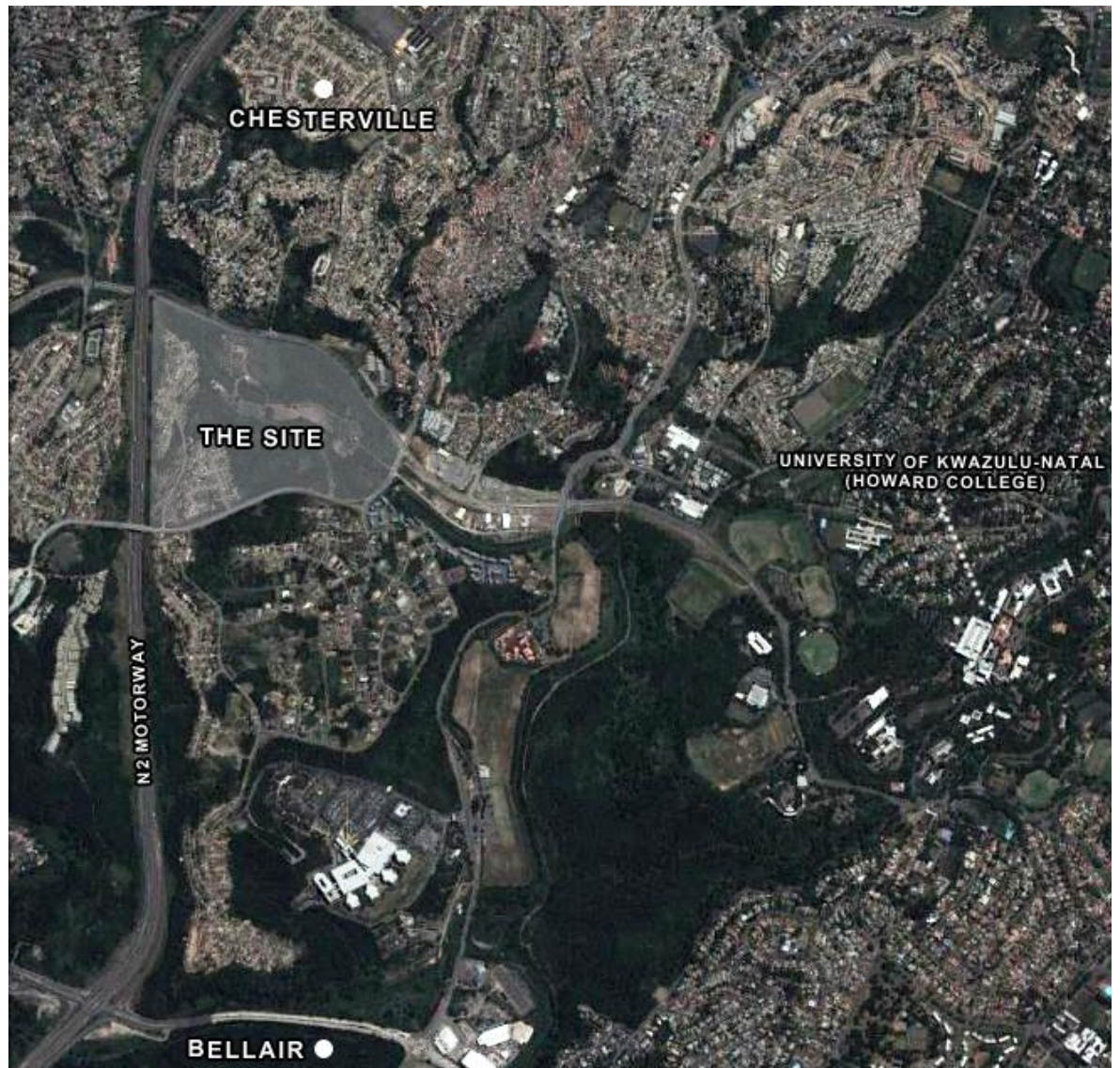
Figure 65: Aerial view of the macro context (Adapted from Google Earth, 2014).

6.2.6 THE SITE

The campus is located at the heart of Cato Manor, at the corner junction of Harry Gwala Road (Booth Road) and Ridge View Road. Regional motorway access to the site is provided by two national roads – the N2 forms the western boundary of the Cato Manor site, and intersects with the east-west N3 motorway to the north.

The site is generally triangular, comprising 39 hectares of land. Topographic variation divides the site into roughly two zones; the alluvial plain of the Umkumbaan River, and the moderate-to-steep shale slopes in the southern and western portions of the site. The dramatic nature of the site restricted the two complexes to being situated upon the flat portions of each zone, being apart from each other, while future residences were zoned on the steeper slopes. The Hairdressing and Hospitality

Centre is located close to the campus main entrance, whereas the Training Centre is at the opposite end of the site, with just pedestrian access close by.

The site vegetation (before development) had no unique visual, ecological, or wildlife habitat value. Therefore, no significant vegetation specimens were preserved. New planting throughout the campus emphasises indigenous species for low maintenance, durability, disease-resistance, and adaptation to local conditions. The landscaping has significantly contributed in unifying the campus and the reintroduction of indigenous plants on the river banks has revitalised the bird life (Informal Interview with Architect).

Figure 66: Site plan – illustrating the two complexes on the campus (Adapted from New Cato Manor Technical College, 1994: 16).
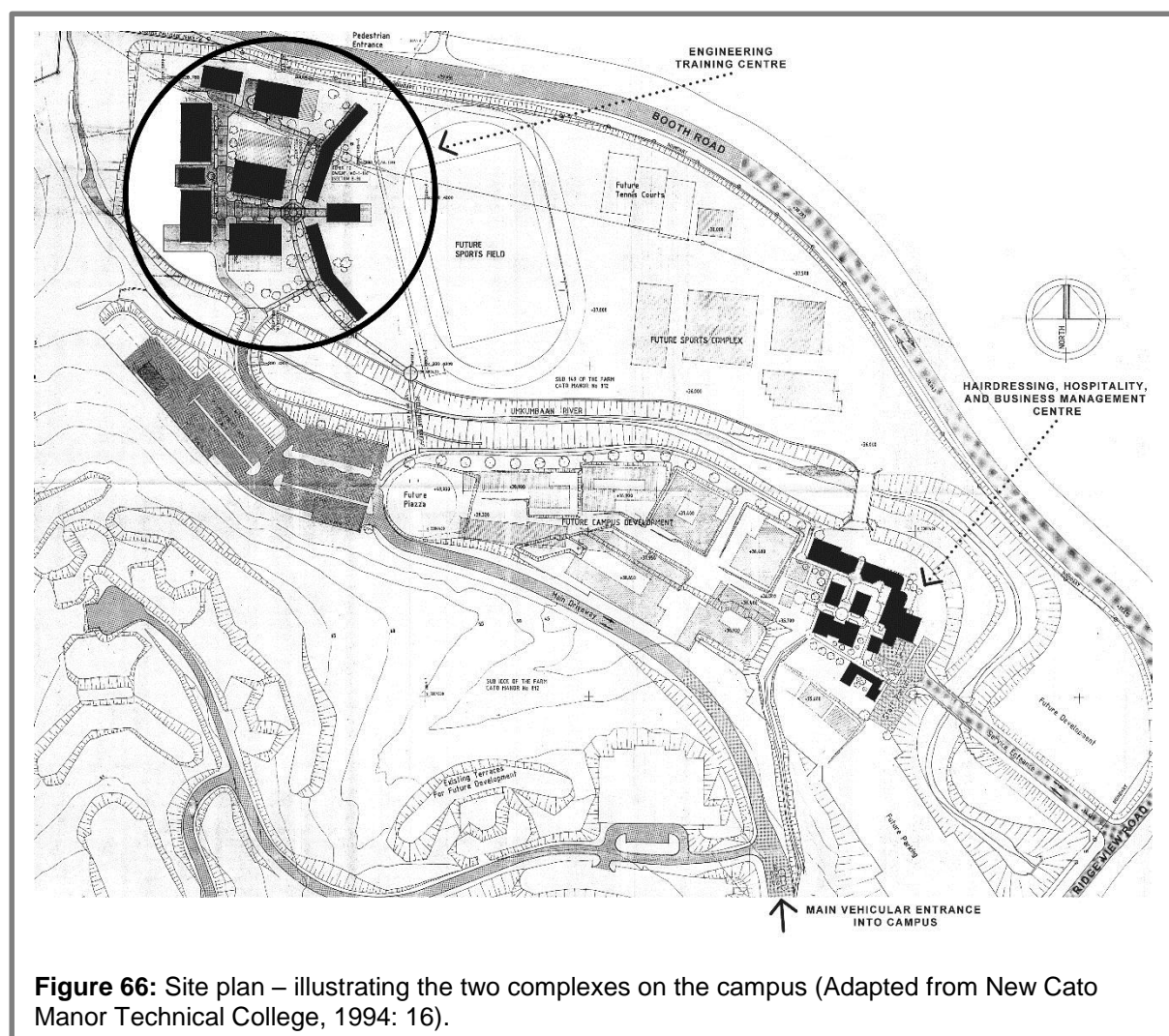
6.2.7 ACCOMMODATION SCHEDULE

Despite the focus of the case study being on the Engineering Training Centre, it is imperative to acknowledge and account for the accommodation schedule at the Hairdressing, Hospitality and Business Management Centre as well since such information shall be taken into consideration for the proposed education and training centre.

The schedules of accommodation, along with the numbers of spaces, are listed below:

THE ENGINEERING TRAINING CENTRE:
Education and Training Spaces:

- Workshops (each with theoretical and practical learning spaces; single office)
  - PLC Landscape   1
  - Electrical   1
  - Woodwork   1
  - Fitting and Turning   1
  - Motor Mechanics   1
  - Refrigeration   1
  - Armature Winding   1
  - Boilermaking   1
  - Sheetmetal Work   1
- Classrooms
  - Standard-sized Classrooms   6
  - Large Classrooms   2

Communal Spaces:

- Computer Laboratory   1
- Tuckshop   1

Ablutions and Service Spaces:

- Male Ablution   1
- Female Ablution   1
- Storeroom   1

Administrative Spaces:

- Reception and Waiting Area   1
- Offices   4
- Meeting Room   1
- Kitchenette   1
- Electronics Room   1
- Storeroom   1
- Male, Female and Paraplegic Toilet   1

Recreational Spaces:

- Makeshift Sports Field   1

Staff Parking:

- 13 Undercover Parking Bays   1

THE HAIRDRESSING, HOSPITALITY AND BUSINESS MANAGEMENT CENTRE:

Education and Training Spaces:

- Hairdressing
  - Salons   3
- Hospitality
  - Cocktail Bar   1
  - Dining Room   1
  - Kitchen   1
- Business Management
  - Standard-sized Classrooms   4
  - Large Classrooms   6

Communal Spaces:

- Library   1
- Computer Lab   1
- Tuckshop   2

Ablutions and Service Spaces:

- Male Ablution   1
- Female Ablution   1
- Paraplegic Toilet   1
- Storerooms   3

Administrative Spaces:

- Reception and Waiting Area   1
- Offices   5
- Meeting Room   1
- Kitchenette   1
- Electronics Room   1
- Storeroom   1
- Male, Female and Paraplegic Toilet   1

Staff Parking:

20 Undercover and 17 Uncovered Parking Bays   1

6.2.8 ACCOMMODATION AND SPATIAL ORGANISATION
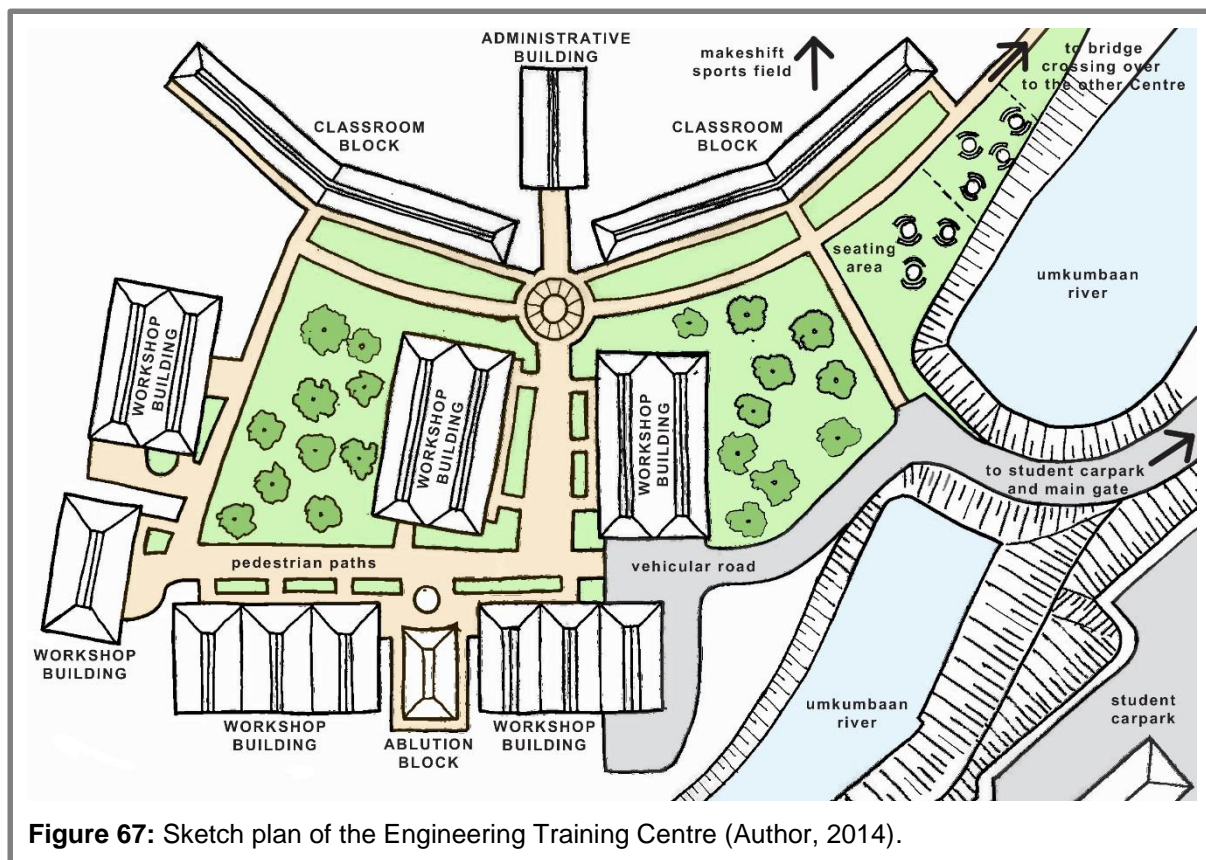
Figure 67: Sketch plan of the Engineering Training Centre (Author, 2014).

The placement of the numerous buildings are in an informal manner, creating a variety of spaces and interesting vistas. Such spaces surrounding the buildings house a variety of "green" spaces with ample trees and other forms of landscaping, like paths and concrete benches. The buildings are all connected by a network of pedestrian pathways, allowing for simple identifiable routes from one facility to the other and beyond.

There are two classroom blocks housing approximately six classrooms each. The classrooms are arranged in a single row, all being accessible off a linear pedestrian pathway on one side of the blocks. The classroom blocks are situated close to the administration block, positioned in such a way whereby they assist in defining the entrance to the administration block and the main pedestrian junction directly in front.

The numerous workshop buildings are informally positioned further away, with the communal and staff ablution block situated between two workshop buildings at the opposite end to that of the classrooms. All of the workshop spaces are entered directly off the pathways. Certain workshop buildings comprise of one workshop space, while

others comprise of two workshop spaces, each space accommodating for a different skill.

Education and Training Spaces:

The classrooms are relatively small in size, accommodating for approximately thirty-six learners per class. The furniture appears cramped within the restrictive designated spaces for the theoretical side of the education and training. There is certainly minimal allowance for movement within the classrooms.

Figure 68: The typical classroom within the classroom block (Author, 2014).

The furniture arrangement is that of a standard classroom configuration with straight rows of seating facing the educator at the front of the class. This suggests that there is minimal interaction between learners. However, according to interviews conducted, the learners do participate in the learning by means of questions posed at the educator, as well as being vocal from the front of the class. Singular timber desks and plastic chairs are used throughout the classroom blocks, which are cheap and easily replaceable, given the unsafe context that the campus is situated in.

Despite the humanistic scale of the buildings, most of the workshops are somewhat large-volume, open spaces by the lack of ceilings - accommodating for practical training - with allowance for reconfiguration of equipment and furniture if the need arises. Each workshop space has a different configuration according to the skill housed within it.

Just a few workshop spaces, such as the Motor Mechanic workshop, accommodates for practical training, as well as theory (classroom arrangement) within demarcated spaces of the larger workshop space. These different types of learning are separated by low-level structural brick walls.

Figure 69: The Motor Mechanics workshop – illustrating the configuration of the practical learning spaces (Author, 2014).

Figure 70: The Motor Mechanics workshop – illustrating the configuration of the theoretical learning spaces (Author, 2014).

The arrangement of the equipment and furniture allows for each learner to have sufficient space for practice upon the skill. The educators demonstrate the method of the skill beforehand and thereafter circulate around the class to observe the active nature of the students.

There are high-level windows throughout the external wall area of which allows for natural lighting and diminishes the possible distractions coming from outside. There is also a distinctive skylight within the entire length of the roofs, assisting in creating vibrant internal spaces.

Figure 71: The large-volume, open-plan typical workshop space (Author, 2014).

Figure 72: Demarcated spaces for each learner to be actively involved (Author, 2014).

Social and Recreational Spaces:

Figure 73: The partially covered seating area for socialising (Author, 2014).

Figure 74: The makeshift sportsfield used by the male learners for football (Author, 2014).

There has been minimal effort towards encouraging social interaction and longer periods of stay on the campus once the formal education and training is over for the day. A partially covered seating area comprising of concrete benches can be seen close to the pedestrian bridge. Learners tend to use the seating area during breaks, though not being centrally located has hindered its usability as, through numerous observations, the area is seldom fully occupied. Furthermore, concrete benches serve as a minimalist approach towards social interaction between learners.

Close to the seating area is a makeshift sportsfield which is basically an open field which has maintained grass and goal posts positioned at certain points on the field. Male learners tend to use the field for football practice in between classes.

6.2.9 STRUCTURAL FORM AND CHARACTER

Since the buildings are the dominant structural elements of the campus, their design contributes to a clear understanding of the organisation of both function and space throughout the site. There is careful co-ordination of materials, colours and finishes for structures throughout the campus, ensuring consistency of form and scale.

The character of the campus on a whole is one of a "domestic" built environment, in contrast with majority of FET Colleges in the country – being "monumental" or "institutional". The Training Centre is therefore of a human scale, composing of only single-storey buildings. This helps with legibility, allowing learners to relate to and accept the campus as part of their environment.
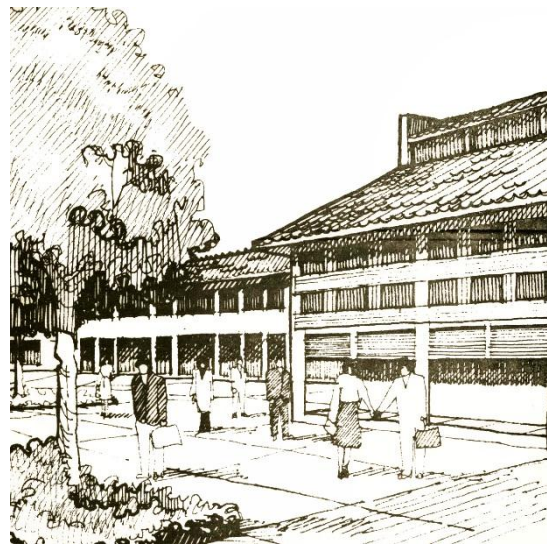
Figure 75: The humanistic scale of the built environment (Author, 2014).

Figure 76: The humanistic scale of the built environment (Author, 2014).

The buildings of the Training Centre require low maintenance and is reflected in the choice of pitched concrete tiled roofs, and banded cavity face brickwork walls. Other standardised elements are also used such as fibreglass gutters and door elements in order to establish the architectural vocabulary. Throughout the complex, the natural materials are enhanced through the use of earth-tone colours.

For the workshops, exposed tubular steel trusses are used, as well as fibreglass roof lights within apex of the roof. Air conditioning and electrical elements were carefully designed to integrate with the tubular steel trusses. Lighting was also introduced into the elegant bridge pylons which now act as lighting masts.

Figure 77: The domestic-like character of the workshop buildings (Author, 2014).
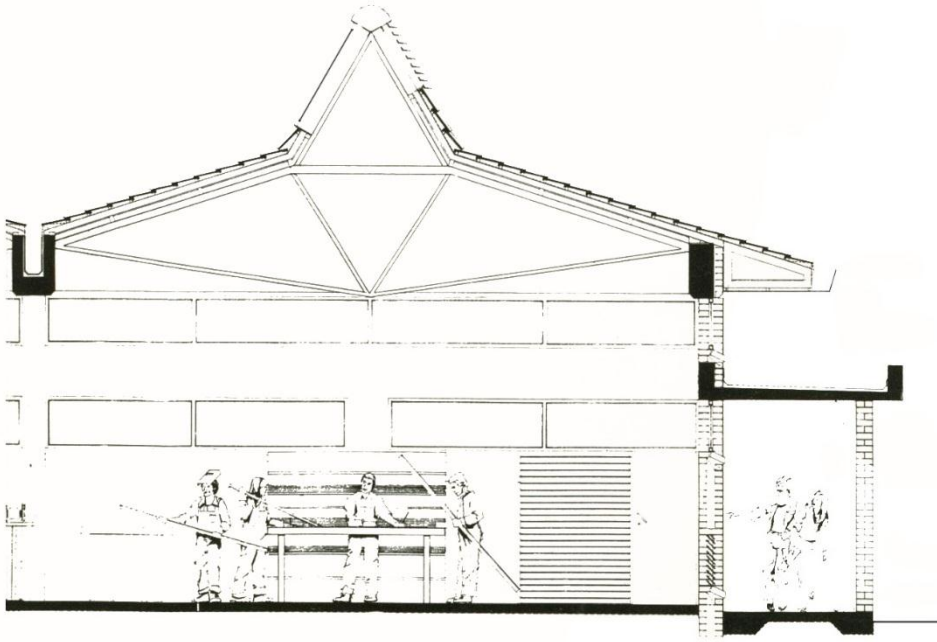
Figure 78: Typical section through a workshop (Adapted from New Cato Manor Technical College, 1994: 19).

The classroom blocks have a simple timber truss system with ceiling boards in place.

Figure 79: The domestic-like character of the classroom blocks (Author, 2014).

6.2.10 CONNECTIVITY OF THE CAMPUS

Brick-scale pedestrian paths integrate with the entire campus, serving as important social, spatial, as well as circulation functions. The paths control and direct the flow of pedestrian movement onto and throughout the campus, connecting major routes of origin and destination with clear and conflict-free routes, reducing or preventing conflicts between vehicles and pedestrians, and providing amenities and opportunities for social interaction throughout the campus.

The walkways are demarcated by solid circular concrete lighting columns which gives greater emphasis to the roots across the campus by both day and night (New Cato Manor Technical College, 1994: 16).

Figure 80: Pathways (and lighting elements) connecting the campus (Author, 2014).

Figure 81: The elaborate pedestrian bridge over the river - connecting the two complexes (Author, 2014).

The two complexes are some 600 meters apart, on either side of the river, and are linked by these paths, as well as a handsome structural steel suspension bridge.

6.2.11 CONCLUSION

The Training Centre serves as a positive contribution to adult educational architecture in the country for the period in which it was completed. To this day, the campus still serves as the more renowned campus of FET Colleges in the country, amidst the vast amount of Colleges in existence.

The Training Centre, specifically, allows for learners to "experience" the environment by means of learners being able to connect with its humanistic

proportions and user-friendly environment. Learners can venture throughout the Centre and the campus on a whole due to the connective attributes of the campus.

The workshops accommodate for full participation and involvement from the learners, pushing the boundaries of vocational training in the country.

Despite its relativity to the communities of the surrounding area, the campus is "lost" within the vast, dense bush area and could have been better located for identification - given that (through interviews) it is difficult to locate the campus.

6.3 CASE STUDY 2: ESAYIDI FET COLLEGE (PORT SHEPSTONE CAMPUS)

Location: Port Shepstone, South Africa

Architect: Level 7 Arch Studio

Completed: Latest Renovation and Alteration in 2006

6.3.1 INTRODUCTION

Amongst the residential houses and dense vegetation sits the ever-so-discreet Port Shepstone campus (of Esayidi FET College) in Oslo Beach, Port Shepstone. Similar to most FET Colleges in the country, the campus was a redevelopment project, initially operating as a government school. The campus covers a fairly small area, yet has a dense built environment housing Engineering, Information Technology and Business Management skills. However, the numerous buildings are different in terms of scale and materiality, thereby resulting in no defined characteristic or image of the campus.

6.3.2 JUSTIFICATION OF CASE STUDY

The campus is part of an FET College aimed at providing skills to the adult population, thereby attempting to overcome unemployment, poverty and crime in the country.

However, the campus epitomises typical FET Colleges within the country, struggling to provide a suitable level of adult education and training. The campus comprises of majority buildings which were not designed and constructed for the purpose of adult education and training. The overall campus environment is one symbolising "education in isolation" due to its physical context as well as the segregation of buildings within the campus.

6.3.3 THE CLIENT

The Esayidi FET College is a government funded initiative of which, throughout the years, has been obtaining minimal funding for all the campuses. It is not managed however by government, but rather by a private organization. The National Certificate Vocational (NCV) program is one of the programmes initiated nationally by government to address the needs for skills development in the country and is utilised in the campus.

6.3.4 HISTORICAL AND SOCIAL CONTEXT OF THE AREA

Majority of the Port Shepstone region has the same overall environmental characteristics, with Oslo Beach being no different. Oslo Beach is a peaceful residential suburb parallel to the beach, with an abundance of holiday houses and lodges. It is dense in vegetation with trees overwhelming the houses, as well as the roads.

Port Shepstone was founded and named after Sir Theophilus Shepstone in 1867, of whom was a member of the Natal government in the 1880's. The town began to be developed in 1882 when a party of Norwegian immigrants came through the then newly-built harbour and settled in the area.

6.3.5 THE SITE

The campus is located close to the beach, being on a road alongside the motorway - Marine Drive (R620) – of which serves as the main motorway access to the site. The campus is situated on Commercial Road, neighbouring a privately owned and managed primary school with dense vegetation serving as the other immediate neighbour.
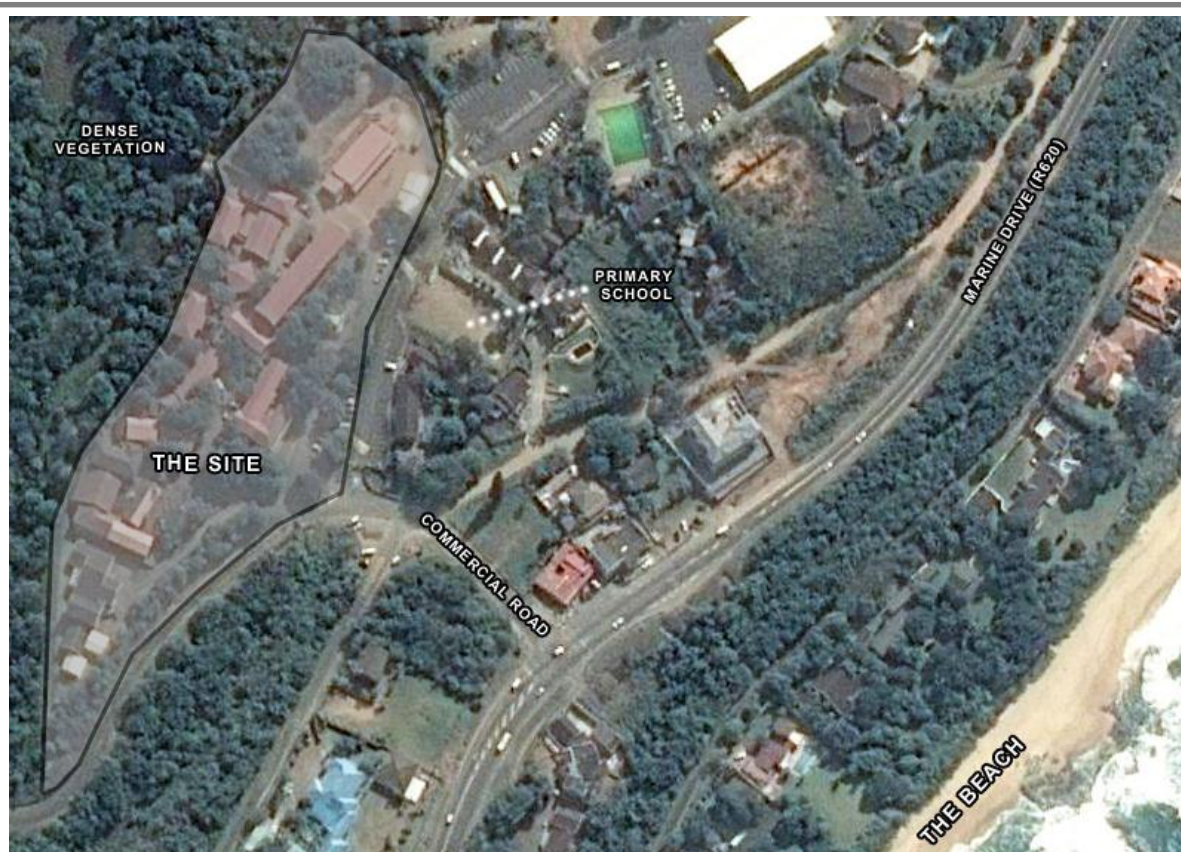
Figure 82: Aerial view of the macro context (Adapted from Google Earth, 2014).

The site is narrow and more-or-less linear, with the campus entrance being midway of the longitudinal campus site. The topography of the site is steep on the south side and becomes flat on the north. Hence, certain buildings having educational spaces on the first storey being entered directly from the natural ground. The entire site is congested with the only significant piece of unused land being at the extreme north end of the site.

Figure 83: The main entrance of the campus with dense vegetation in the background (Author, 2014).

Upon the change in typology of the land, it was decided that the site vegetation was to be preserved and maintained, having not been an issue when the government school was in practice (Informal Interview with Architect).

6.3.6 STRUCTURAL FORM AND CHARACTER

The campus comprises of a multitude of different buildings in terms of scale and materiality. The buildings are either one or two storeys high and some are accessible on the first storey due to the steep gradients of the land. Since the campus was a redevelopment project stemming from the need to reuse the then functional government school, majority of the buildings are "institutional" - having minimal connection with the surrounding environment. The campus certainly has no character, given the extreme variability between the buildings. The fact that the existing buildings (of contrasting characteristics) were reused when the typology of the land changed, resulted in future developments on the site having its own character apart from the other buildings.

The structural components of the buildings are similar throughout the campus, using traditional, cheap materials. The buildings are made of load-bearing brick walls, with the variability being the different types of face brick, as well as the latter building development having a smooth-trowelled plastered finish. The roof structure comprises

of concrete roof tiles upon timber trusses. The trusses are exposed within the few workshops, and are concealed via ceilings within the classroom blocks.

Figure 84: The varying building scales and "institutional" aesthetic (Author, 2014).

Figure 85: The latest building development – classroom block – having a different aesthetic to that of the other buildings (Author, 2014).

Figure 86: The Information Technology building with first storey entrance (Author, 2014).

Figure 87: The Automotive Trade Test Centre (Author, 2014).

6.3.7 ACCOMMODATION AND SPATIAL ORGANISATION

The buildings are situated informally on the site due to the fact that many of the buildings were designed after the initial development of the government school (Informal Interview with Architect).

The spaces between the buildings are barren lands, having not been maintained and landscaped. Being unfamiliar to the environment, the lack of defined paths can cause learners to become "lost" and results in a segregated environment which needs to be stitched together. This is the reason as to why learners socialise anywhere and

everywhere on the campus, giving the observer a negative image of the environment due to the behaviour patterns.

The relatively steep south side of the site is demarcated for the Engineering department, followed by the Information Technology department midway of the site, and Business Management at the flat north end of the site.

Since Information Technology and Business Management (as well as the theoretical side of Engineering) require classrooms for teaching/learning, classroom blocks make up more than 70% of the built environment of the campus (Informal Interview with Architect). The classroom blocks comprise of specific design principles – single rows of classrooms with a covered outside corridor on the front façade (irrespective of the storey). There are external staircases for double-storey blocks.

Within the engineering department, there are separate workshop buildings for each type of engineering (of which there are just a few) at the steep southern-most portion of the site, away from the rest of the buildings (classroom blocks) due to the noise factor. The workshops are one-storey high, having pedestrian access on one side of the workshops, as well as vehicular access for the automotive workshops.

The classrooms are relatively small in size, accommodating for approximately thirty learners per class. There is sufficient space for mobility within the classrooms.

The furniture arrangement is that of a standard classroom configuration with straight rows of seating facing the educator at the front of the class. This suggests that there is minimal interaction between learners. Singular timber desks and plastic chairs are used throughout the classroom blocks.

The classrooms are separated by movable partition walls, allowing for accommodation of larger class sizes if the need arises.

Large windows allow for ample natural light to fill the classrooms, despite the excessive use of artificial lighting.

The computer labs comprise of rows of individual cubicles separated by timber screens. The rows of furniture and computer equipment allow for a pair of two learners to face each other. The furniture of the entire space is of unfinished, treated timber.

Figure 88: The computer lab (Author, 2014).

Figure 89: A typical classroom with openable walls for adaptability (Author, 2014).

All of the workshops do not have ceilings to allow for larger-volume spaces to train in. Each workshop space has a different configuration according to the skill housed within it.

Just a few workshop spaces, such as the automotive workshop, accommodates for practical training, as well as theory (classroom arrangement), each within demarcated spaces of the larger workshop space. These different types of learning are separated by low-level structural brick walls.

Figure 90: The theoretical learning space within the automotive workshop (Author, 2014).

The arrangement of the equipment and furniture allows for each learner to have sufficient space for practice upon the skill. The educators demonstrate the method of the skill beforehand and thereafter circulate around the class to observe the active nature of the students.
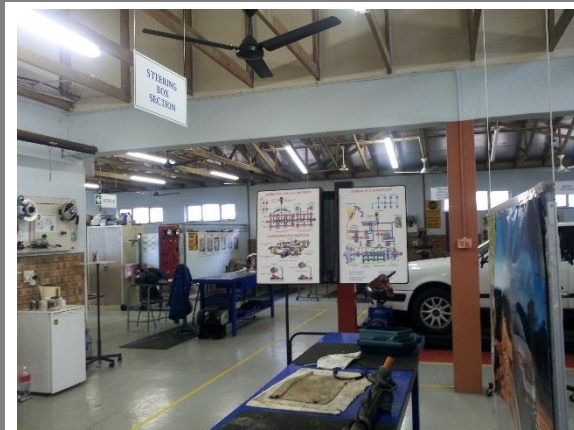
Figure 91: The well-maintained automotive workshop (Author, 2014).

Figure 92: The automotive workshop with modern equipment (Author, 2014).

6.3.8 CONCLUSION

The Port Shepstone campus of Esayidi FET College, just like most FET Colleges, serves as a negative contribution to adult educational architecture in the country for the period in which it was completed, and thereby certainly for the current state of society for which it is meant to serve.

The buildings are too segregated and do not form a collective "image" and overall character of a campus environment. There are no connective elements which stitches the campus together, with the intermediate spaces between buildings being barren and undeveloped.

The workshops serve as the only viable educational spaces on the campus, being well-maintained and the training being of a suitable level.

6.4 CONCLUSION

The ability of adult education and training environments to physically and mentally connect with the learners and house learning functions which encourages learners to be proactive and interactive is highly scarce in the country.

Hence, one of merely a few FET Colleges which serves as a positive contribution to adult educational architecture in the country is worth elaborating on, focussing on the design attributes which allows learners to experience the learning and the learning environment. The Engineering Training Centre of Thekwini FET College (Cato Manor campus) allows learners to connect with its humanistic proportions and user-friendly environment. Learners can venture throughout the Centre and the campus on a whole due to the connective attributes of the campus. The workshops accommodate for full participation and involvement from the learners, pushing the boundaries of vocational training in the country. The only negative aspect is that, despite its relativity to the communities of the surrounding area, the campus is "lost" within the vast, dense bush area and could have been better located for identification - given that (through interviews) it is difficult to locate the campus.

On the other hand, the Port Shepstone campus of Esayidi FET College, just like most FET Colleges, serves as a negative contribution to adult educational architecture in the country for the period in which it was completed, and thereby certainly for the current state of society for which it is meant to serve. The buildings are too segregated and do not form a collective "image" and overall character of a campus environment. There are no connective elements which stitches the campus together, with the intermediate spaces between buildings being barren and undeveloped. The workshops serve as the only viable educational spaces on the campus, being well-maintained and the training being of a suitable level.

CHAPTER 7:

SUMMARY OF THE STUDY, ANALYSIS, DISCUSSION AND FINDINGS

7.1 INTRODUCTION

This research was undertaken to gain an understanding of "experiential learning". The knowledge gained is used to demonstrate a better understanding of how buildings for adult education should be designed. This serves as a complete analysis and discussion of the findings from both the primary and secondary data. The data shall be compared and contrasted in order to establish correlations and variance, and shall serve as an initiative towards the final theoretical framework.

7.2 INVESTIGATIVE APPROACH

The investigative approach taken was that mentioned initially within the chapter, "Research Methodology", as no major problems or limitations caused the research approach to be altered.

Three theories and concepts were identified and served as the foundation for the research, focussing on active learning; collaborative learning and social connections; and meaningful and experiential built environments. It drew on published literature pertaining to the theories and concepts, and involved an intense discussion between various thinkers in the fields of education, sociology, psychology, and most importantly architecture.

This was followed by precedent studies, analysing four successful built environments located abroad, which relates to the architectural principles derived from the literature review.

Similarly, it involved empirical research of two case studies within KwaZulu-Natal, which are adult education and training centres. Interviews were also conducted with adult learners, educators, as well as informal interviews with architects.

7.3 LIMITATIONS AND PROBLEMS ENCOUNTERED

There were minor problems encountered during empirical research. Such problems were overcome through persistence and slight adaptability in the research.

Obtaining permission to conduct research at the chosen case studies proved to be a strenuous task as the built environments are not public buildings, and therefore the process in obtaining permission from the relevant authoritative figures proved to be time consuming.

Given that the case studies are of built environments which were completed, or had significant construction done within it, more than two decades ago, resulted in the collection of data through secondary sources problematic. The data (physical and digital drawings) were either difficult to locate or misplaced through the years.

The main problem which occurred through interviews was that the main target groups, being adult learners, were reluctant in entertaining discussions of any nature with the researcher, of which they were not familiar with. Despite efforts to pose questions which were sensitive to different cultures and intellectual stances in society, it required persistence and reassurance from the researcher in allowing the subjects to feel comfortable and open for discussion.

7.4 SUMMARY OF ANALYSIS, DISCUSSION, KEY RESPONSES AND FINDINGS
7.4.1 ANALYSIS OF INTERVIEWS

Learners and educators both felt that theoretical and practical learning spaces should be clearly separated and not housed within the same overall space. This is due to the fact that the learning functions are associated with vastly contrasting noise levels, and would potentially serve as a distraction if both methods are to be functional at the same time. However, for the sake of mobility, the spaces should not be too distant from each other as they are linked within certain fields of study.

According to learners, classroom configurations should change to incorporate interactive learning, setting it apart from that of typical school classroom environments. The practical learning spaces, such as workshops, should strive more on the method of simulation, allowing all learners to practice upon the skill for lengthy periods of time, housing individual spaces and equipment for the learners.

Learners believed that intermediate or centrally located defined social spaces are required in order to encourage learners to interact with each other, be it for casual discussion or knowledge transfer. In this way, learners will prolong their stay at the colleges as well, learning after-hours.

All of the learners and educators felt that learning environments should connect with the majority users of the environment, being adult learners. Learners should feel comfortable and feel "at home" within the built environment.

According to the learners and educators, FET Colleges are better suited within the suburban context due to mobility and transport reasons on the part of the learners. However, many learners do not feel safe being educated within the townships, or close by to such undeveloped living areas despite many learners residing there. They would rather prefer a lively learning environment, preferably within the urban context of which transport nodes are in abundance.

7.4.2 DISCUSSIONS AND FINDINGS

Experiential Learning and Active Learning:

Commencing with the Experiential Learning theory, it is understood that adult education and training environments need to allow learners to be more independent. It is imperative for adult learners to experience the learning and be completely involved in the learning processes. The educational processes should not be passive in any which way and learners should be motivated towards gaining the most experience possible. John Dewey, through his initial work on "experience" within the educational environment, helped to initiate further debate in later years of which David Kolb featured extensively. Dewey believed that progression can be achieved if students are allowed to experience and interact with the curriculum in the educational environment; all students should have the opportunity to take part in their own learning. (Jackson and Caffarella, 1994: 6).

Adult educators and trainers should allow for, and insist on active learning, having flexibility within their preferred teaching styles. Traditional methods of teaching and learning should be manipulated to allow for questions posed at the educator, discussion between educator and learners, as well as further discussion between learners pertaining to the knowledge recently acquired from the educator. This suggests that space and furniture arrangements should enforce this notion of active learning, moving away from the traditional classroom spaces evident at local schools with straight rows of furniture directed towards the educator at the front of the classroom. Herringbone furniture arrangement, amongst other arrangements, serve as preference towards a transitional classroom space. With the addition of discussion,

separate breakout rooms are ideal if the classroom is to have a traditional furniture arrangement.

As witnessed at Thekwini FET College (Cato Manor campus) and Esayidi FET College (Port Shepstone campus), such traditional classroom arrangements are used throughout the campuses. Through interviews conducted with learners at the institutions, it was confirmed that the learners feel that they are not being treated as adults, but rather as children passively acquiring knowledge in a school classroom. They would appreciate initiatives taken towards making the learning interactive, which can be compared to the educational stances taken within HET institutions in the country, and abroad.

Pertaining to the practicality of adult education and training, there is often a misconception that such a type of learning is generally active. However, the level of active training on the part of the learner is governed by the balance between demonstration and simulation. Allowing for a higher percentage of simulation within the learning processes suggests that learners require sufficient space, furniture and equipment for all learners to constantly participate without clashes between learners.

Through interviews conducted with learners and educators at Thekwini FET College (Cato Manor campus), it was unanimous that adequate facilities were provided and learners are content with the experience acquired, especially within the engineering workshops. The boiler-making workshop, for example, contains separate workable spaces and equipment for each learner to practice upon the skill without sharing being needed amongst learners.

Furthermore, through interviews, learners were of the opinion that theoretical and practical learning spaces should be separated due to the vastly different noise levels, yet still relatively close by to one another for the sake of mobility.

Social Constructivism of Knowledge and Social Connections:

Experiential learning is not fixated with learning conducted by an educator or trainer, but can also be affiliated with learning outside of the formal educational realm. Informal learning spaces should encourage adult learners to learn together, encouraging the learners to diffuse their knowledge and skills amongst each other for large-scale cognitive development and democracy. Such a radical perspective made the work of Paulo Freire (1970) renowned in the sphere of education and sociology. Heaney (1992) believed that such spaces need to house the relevant facilities in order

to draw the learners to the spaces, accommodating for anyone who has the desire to learn. This emphasizes on the importance of learning spaces that facilitate social connections, which relates strongly to the social theory developed by Lev Vygotsky, called Social Constructivism of Knowledge.

Social connections seems to be lacking within Esayidi FET College (Port Shepstone campus), as well as Thekwini FET College (Cato Manor campus), as minimal effort has been made by the architect towards encouraging these social connections outside of the classroom and workshop spaces. Randomly arranged and seldom used concrete benches are the only measures taken to achieve this and learners, through interviews, feel that it is not adequate. Segregation is evident as learners find and utilise random spaces to interact and often learners depart from the institutions as soon as the opportunity arises. The learners felt that defined undercover or enclosed social spaces are a necessity at the campuses, especially being situated between formal learning spaces.

The John A. Brink Technical Trades and Technology Centre offers opportunities for informal learning and interaction, being spatially organised around a central corridor which serves not just as a passageway but more importantly as an intermediate social space - creating physical and social connections from the adjoining formal learning spaces. Another positive initiative towards social connections in a learning environment is seen at O. P Jindal Institute of Technology and Skills, with opportunities for social connections to be made at numerous well-defined areas such as the numerous internal, open-aired courtyard spaces which the formal learning spaces open out towards. The Sendai Mediatheque is renowned for its social attributes, enhancing community development, not just throughout the building through minimal obstructions, but also by its strong visual connection with the surrounding communities in the urban landscape.

Genius Loci and Meaningful Built Learning Environments:

The learning environment needs to be "experienced" in every sense of the word, given that phenomenological learning experiences are possible through perceptions of the built environment. In this context, experience is affiliated with "meaning" and "continuity", and is therefore discussed with detailed mentioning of Norberg-Schulz theory, Genius Loci, which strives on connections between man and the environment. Given that the research is drawn more towards built learning environments within the

urban context, the work of Kevin Lynch features extensively as well. The structure of the learning environment should create, and maintain, an environmental image in the minds of the adult learners. The informality and continuity in the learning environment should not allow the learners to become "lost", still affiliating themselves with the entire built environment. This can be achieved by the use of distinctive paths for connectivity. The adult learning environment also needs to display a character, embracing qualities of "interaction" and "openness". The character should be one which connects with the human, being sensitive to the group of society in focus – adult learners.

The Training Centre of the Thekwini FET College (Cato Manor campus) allows for learners to "experience" the built environment by being able to connect with its humanistic proportions and user-friendly environment. Through interviews with the learners at the campus, it was confirmed that most learners can relate to, and connect with, the built environment. Learners can venture throughout the Centre and the campus on a whole due to the connective attributes of the campus such as the defined paved pedestrian pathways (with lighting pillars). On the contrary, the "institutional" buildings of the Esayidi FET College (Port Shepstone campus) are too segregated and do not form a collective "image" and overall character of a typical campus environment. There are no connective elements which stitches the campus together, with the intermediate spaces between buildings being barren and undeveloped.

Having similar views to Norberg-Schulz, Paolo Soleri also emphasised on architecture that is not immaterial, but rather forms a strong, unexplanable connection with the human species. In Arcosanti, an experimental and experiential town, Soleri exemplified his steadfast devotion to creating an environment in harmony with man as the town is highly specific to context, using only natural materials, and is constructed by large communities of motivated "learners".

7.5 CONCLUSION

The interviews conducted with adult learners, educators and members of higher management at the sites of the case studies certainly contributed to the research in a positive manner, and more-often-than-not certified the views of the researcher on specific aspects.

The overall analysis of the research findings, comprising of primary and secondary data, serves as a guide towards the conclusion and recommendations, thus concluding the research.

CHAPTER 8:

CONCLUSION AND RECOMMENDATIONS

8.1 SIGNIFICANCE OF THE FINDINGS

The key findings which has been summarised certainly serves as a foundation towards recommendations for a proposed education and training centre for adults which emphasises on experiential learning. As hoped, the various sources, from which the findings were drawn from, all contributed in different ways towards the outcome of the research.

8.2 CONCLUDING STATEMENTS

The overarching findings of the research emphasises on the understanding of "experiential learning". The knowledge shall assist in demonstrating a better understanding of how buildings for adult education should be designed. Learning in a traditional sense by means of educators imparting knowledge onto learners is not the only means of acquiring knowledge and skills which is impactful on modern-day societies, specifically the adult population. Adult learners require physical and psychological connections with the learning activities, social realms around them, and the built environment itself, in order to acquire the necessary tools for a better way of life and employment opportunities, not just for the present, but also for future growth, in a challenging socio-economic environment. The architectural principles derived from such a research stance assist towards recommendations for an education and training centre for adults which emphasises on experiential learning.

8.3 RECOMMENDATIONS

8.3.1 THEORETICAL FRAMEWORK

Adult learners cannot expect to obtain the foundations towards a better life by being educated and trained in a manner where they are marginally involved in the learning processes and can possibly be viewed as bystanders. Learner interaction with the curriculum means that different space configurations are required to suite the "*active learning*" methods. Be it theory or practical learning facilities, a connection between learners and the learning processes is important.

"Social connections" are paramount to achieving large-scale educational and social development. The sharing of knowledge and skills between a wide range of adult learners has the potential of being experiential and the possibilities for such connections should be considered within the built learning environment. Intermediate spaces between formal learning functions should embrace this concept of social connections. Furthermore, the location is paramount for the concept being successful on a large scale, with the urban context being preferable due to the multitude of social nodes and their varying experiences.

The built learning environment itself offers opportunities towards learning experiences being made by learner perceptions of, and psychological connections with, the built environment. The built environment can be accommodating and relate to the users (by its character), being adult learners in this circumstance, or be resistant, and this needs to be taken into consideration when contemplating the formulation of connections between man and the environment. On that note, orientation and continuity within the built environment, irrespective of the complexity of the spatial organisation, should not be problematic for the learners but rather a simple task. This assists in the understanding of *"meaningful built learning environments"*.

8.3.2 DESIGN RECOMMENDATIONS

The theoretical framework can only be meaningful if it is truly addressed. Hence recommendations shall be provided based on the theoretical framework to aid the proposal of an interactive education and training centre for adults in Durban. These recommendations shall be implemented in Part Two (Design Report) of the dissertation.

The overall development should encourage active involvement in the education and training activities, be it within theoretical or practical learning spaces. There should be space and equipment for each and every learner to partake in simulation learning methods, with minimal demonstration. With the adoption of questions and discussion into the educational processes, the classroom environments should accommodate for different furniture configurations to suite. If a traditional classroom environment is preferable for certain fields, separate breakout rooms shall be provided to encourage further discussion and study. The theoretical and practical learning spaces should certainly be apart from one another due to the varying noise levels, yet not be situated

too far apart as certain fields in education and training tend to utilise the learning spaces within close intervals.

In order for large-scale social development to be achieved, the intermediate spaces connecting formal learning activities shall be designed be encourage impromptu meetings and collaborative learning. These social spaces should serve as after-hour facilities for learners to dwell and share opinions on the knowledge gained. Visual and physical barriers should be minimal internally throughout the development, thereby allowing for communities to form by avoiding potential isolation of adult learners. Visual connections shall also be evident between the internal and external spaces, thereby encouraging community development.

The quality of the development should ensure an aesthetic that is humanistic and relates to the majority users, being adult learners. "Institutional" buildings (in terms of aesthetic) shall be avoided as this is a major issue with such development of its kind in the country. The environment should ensure a high degree of legibility and orientation in terms of the spatial organisation. Physical connections should be made and this shall hopefully allow learners to experience the environment – by means of minimal obstructions and the ability to construct meaning from the environment along the journey. A play with spatial volumes can also assist in this regard, allowing for possibilities of excitement along the journey throughout the development. Furthermore, there should be opportunities for learners to personalize spaces, by allowing for slight flexibility of the spaces.

8.3.3 CRITERIA FOR SITE SELECTION

There is often scepticism on the part of the architect upon the erection of a new development. This scepticism is linked to the viewpoint of the public and welcoming of the new development.

Accounting for earlier analysis of built environments in their physical and social contexts, it is certain that the development cannot be situated within a remote area. This will potentially alienate the already socially-deprived large groups of society - being educationally and economically deprived adults. Ensuring participation and interaction within the development suggests that the site be within a lively community environment, or preferably within the urban context. The site should be easily accessible and identifiable, serving as a potentially new model for adult education and training centres in the country as existing adult educational facilities are often situated

within the townships. The figure-ground balance between the new development and the surrounding buildings should be such that the development is visually apparent. The site should have a relatively close link to major or minor transport nodes, avoiding the burden of long-distance travelling. Furthermore, a relatively flat site would be preferable to avoid the need for unnecessary ramps and staircases that might have not been otherwise part of the concept or design development.

8.3.4 APPROACH TO ACCOMMODATION SCHEDULE

The approach to an accommodation schedule is derived from the analysis of the built environments.

Given that the proposal is of an education and training centre, such spaces pertaining to the intellectual development of adults serve as the cornerstone of the development. These spaces include workshop spaces, classrooms and lecture halls. The theoretical and practical learning spaces shall be set apart or have intermediate buffered spaces due to the varying noise levels. Collaborative learning at the leisure of the learners will also be encouraged by providing library and studio spaces, along with computer laboratories for individual study.

Administrative offices and facilities shall be partially isolated for the sake of privacy, given the nature of work in comparison to that of the educational sector.

Residential units shall be provided for the learners, given that the location of the development is to be quite some distance away from the residences of majority of the potential learners.

Recreational and entertainment facilities shall be provided for learners to utilise, accommodating for outdoor sports facilities, as well as entertainment rooms.

Also, food outlets and cafeterias shall provide learners with food and beverage due to the potentially lengthy durations of stay within the development.

Lastly, student and more-so staff parking is to be provided, bearing in mind that, through analysis of the findings, majority adult learners depend on public transport.

REFERENCES

BOOKS

1. Beard, C. 2010. *The Experiential Learning Toolkit: Blending Practice with Concepts*. India: Replika Press Pvt Ltd

2. Brookfield, S. D. 1990. Discussion. In: Galbraith, M. W. et al. eds. *Adult Learning Methods*. Malabar Florida: Robert E. Krieger Publishing Co, Inc, pg. 187 – 204

3. Criticos, C & Thurlow, M. 1987. *Design of Learning Spaces*. Durban: Media Resource Centre, University of Natal

4. Galbraith, M. W. 1990. *Adult Learning Methods*. Malabar Florida: Robert E. Krieger Publishing Co, Inc

5. Farrah, S. J. 1990. Lecture. In: Galbraith, M. W. et al. eds. *Adult Learning Methods*. Malabar Florida: Robert E. Krieger Publishing Co, Inc, pg. 161 – 186

6. Gilley, J. W. 1990. Demonstration and Simulation. In: Galbraith, M. W. et al. eds. *Adult Learning Methods*. Malabar Florida: Robert E. Krieger Publishing Co, Inc, pg. 261 – 282

7. Indabawa, S and Mpofu, S. 2006. *The Social Context of Adult Learning in Africa*. Cape Town: UNESCO Institute for Education and Pearson Education

8. Jackson, L and Caffarella, R. S. 1994. *Experiential Learning: A New Approach*. California: Jossey-Bass Publishers

9. Janisch, W. 2002-2003. The National Training Directory 2002-2003. South Africa: Rainbow S.A

10. Knowles, M. 1973. *The Adult Learner: A Neglected Species Second Edition*. Houston Texas: Gulf Publishing Company

11. Knowles, M. 1985. *Andragogy in Action: Applying Modern Principles of Adult Learning.* London: Jossey-Bass Publishers

12. Kolb, D. A. 1984. *Experiential Learning: Experience as the Source of Learning and Development*. New Jersey: Prentice-Hall, Inc.

13. Lewis, L. H. 1990. Computer-Enriched Instruction. In: Galbraith, M. W. et al. eds. *Adult Learning Methods*. Malabar Florida: Robert E. Krieger Publishing Co, Inc, pg. 303 – 328

14. Lynch, K. 1960. *The Image of the City*. Massachusetts: The M. I. T. Press

15.	Mahnke, F and Mahnke, R. H. 1987. *Colour and Light in Man Made Environments.* New York: Van Nostrand Reinhold

16.	Marsick, V. J. 1990. Case Study. In: Galbraith, M. W. et al. eds. *Adult Learning Methods*. Malabar Florida: Robert E. Krieger Publishing Co, Inc, pg. 225 – 246

17.	Merriam, S. B and Caffarella, R. S. 1991. *Learning in Adulthood: A Comprehensive Guide*. California: Jossey-Bass Publishers

18.	Merriam, S. B and Caffarella, R. S. 2007. *Learning in Adulthood: A Comprehensive Guide*. California: Jossey-Bass Publishers

19.	Mezirow, J. 1991. *Transformative Dimensions of Adult Learning*. Oxford: Jossey-Bass Publishers

20.	Norberg-Schulz, C. 1971. *Existence, Space and Architecture*. New York: Praeger

21.	Norberg-Schulz, C. 1980. *Genius Loci: Towards a Phenomenology of Architecture*. Academy Editions: London

22.	Oblinger, D.G ed. 2006. *Learning Spaces*. U.S.A: Educause

23.	Scully, V. 1942. *Modern Architecture*. New York: George Braziller Inc.

24.	Sisco, B. R. 1990. Forum, Panel, and Symposium. In: Galbraith, M. W. et al. eds. *Adult Learning Methods*. Malabar Florida: Robert E. Krieger Publishing Co, Inc, pg. 283 – 302

25.	Smit, W and Hennessy, K. 1995. *Taking South African Education out of the Ghetto: an Urban Planning Perspective*. Cape Town: UCT Press (Pty) Ltd

26.	Skinner, R. 1998. *Vocational Training in the Community*. London: Intermediate Technology Publications

27.	Stein, D. S. and Imel, S. ed. 2002. *Adult Learning in Community. New Directions for Adult and Continuing Education* Series, no. 95. San Francisco: Jossey-Bass Publishers

28.	Venturi, R. 1966. *Complexity and Contradiction in Architecture*. New York: The Museum of Modern Art

JOURNAL ARTICLES

1. Abdi, A. A. 2001. Integrated Education and Black Development in Post-apartheid South Africa: critical analyses. *Compare: A Journal of Comparative Education* Vol. 31, No. 2 pg. 229 – 244

2. Allais, S. 2012. Will Skills Save Us? Rethinking the Relationships between Vocational Education, Skills Development Policies, and Social Policy in South Africa. *International Journal of Educational Development* Vol. 32, pg. 632 – 642

3. Crook, C and Mitchell, G. 2012. Ambience in Social Learning: Student Engagement with New Designs for Learning Spaces. *Cambridge Journal of Education* Vol. 42, No. 2 pg. 121 – 139

4. Guthrie, K. L and Jones, T. B. 2012. Teaching and Learning: Using Experiential Learning and Reflection for Leadership Education. *New Directions for Student Services*, No. 140 pg. 53 – 63

5. Hodge, D. 2009. Growth, Employment and Unemployment in South Africa. *South African Journal of Economics* Vol. 77, No. 4 pg. 488 – 504

6. Katherine, C. P and Cody, J. K. 2009. Cognitive and Social Constructivism: Developing Tools for an Effective Classroom. *Education* Vol. 130, No. 2 pg. 241 – 250

7. Liu, C. H and Matthews. R. 2005. Vygotsky's Philosophy: Constructivism and its criticism examined. *International Education Journal* 6 pg. 386 – 399

8. Mero, T. 2012. Architecture Meets Ecology at Arcosanti. *Sustainability* Vol. 5, No. 2, April 2012, pg. 70 – 74

9. New Cato Manor Technical College. 1994. *Architect & Builder*, May 1994, pg. 14 – 19

10. Pollock, N. R. 2001. Toyo Ito Imagines what the Future of Information and Digital Technologies might be, then Builds it in Sendai, Japan, at Mediatheque. *Architecture Record,* May 2001, pg. 190 – 201

11. A Spatial Dialogue. 2010. *Architecture + Design*, June 2010, pg. 133 – 138

12. Sternberg, E. 2000. An Integrative Theory of Urban Design. *Journal of the American Planning Association* Vol. 66, No. 3 pg. 265 – 278

13. Taggart, J. 2006. Outside the Box. *Canadian Architect*, October 2006, pg. 39 – 42

14. Visser, M and Kruss, G. 2009. Learnerships and Skills Development in South Africa: A Shift to Prioritise the Young Unemployed. *Journal of Vocational Education and Training* Vol. 61, No. 3 pg. 357 – 374

RESEARCH DOCUMENTS

1. Foster, M. 2011. *The Adult Education and Economic Growth Act (H.R. 2226)*. Clasp, Washington

2. International Labour Conference. 2008. *Conclusions on Skills for Improved Productivity, Employment Growth and Development*. International Labour Office, Geneva

NEWSPAPER ARTICLES

1. Cole, B. 2007. Skills Shortage Hampering S.A's Construction Industry. *Daily News.* 12 November 2007 pg. 5

2. Snyman, E. 2007. Joint Efforts to Provide New Construction Programme. *Daily News Workplace*. 17 January 2007 pg. 1

COMPANY PUBLICATIONS

1. M. A. Gafoor Architects. 1987. *Master Plan for the Durban College of Education*. Glans Punt Printers

DISSERTATIONS

1. Bekker, M. 2011. *Socio-Psychological Experience as a Generator of Space and Form: Designing an Orientation Centre for Migrants in Durban*. M.Arch Dissertation. Durban: University of Kwazulu Natal

2. Hartl, L. 2008. *Adaptable Architecture for an Evolving Educational System: The Design of a Facility for Adult Basic Education and Vocational Training in The Greater Warwick Junction Precinct*. M.Arch Dissertation. Durban: University of Kwazulu Natal

3. Miller, V. 2011. *Architecture Informed by Social Identity, Meaning and Memory: A Provincial Legislature for Pietermaritzburg, Kwazulu-Natal*. M.Arch Dissertation. Durban: University of Kwazulu Natal

4. Salvesen, M. S. 2010. *Integrated Learning Spaces in Adult Education: A Case of Kwazulu - Natal*. M.Arch Dissertation. Durban: University of Kwazulu Natal

WEBSITES

1. Cosanti Foundation. 2012. ***Arcosanti*** (Online). Available at http://arcosanti.org. (Accessed: 20 May 2014)

2. Dewey, J. 2011. ***Experience and Education*** (Online). Available at http://schoolofeducators.com/wp-content/uploads/2011/12/EXPERIENCE-EDUCATION-JOHN-DEWEY.pdf. (Accessed: 09 March 2014)

3. Lindner, M. ***Diversity of Learning Environments – Bridges between Formal, Non-formal and Informal Learning Environments*** (Online). Available at http://www.viauc.com/projects/inandout/Documents/Diversity%20of%20learning%20environments%20Bridges%20between%20formal%20non%20formal%20and%20informal%20learning%20environments.pdf. (Accessed: 05 March 2014)

4. Whiteside, A and Fitzgerald, S. 2008. ***Designing Spaces for Active Learning*** (Online). Available at http://informedesign.umn.edu. (Accessed: 27 April 2014)

APPENDICES

APPENDIX 1: PERMISSION TO CONDUCT RESEARCH: CASE STUDY ONE
(One copy to be left with the College Principal/Director; one copy to be kept by the Researcher).

THE IMPACT OF EXPERIENTIAL LEARNING IN DESIGNING BUILDINGS FOR ADULT EDUCATION: A Proposed Interactive Education and Training Centre in Durban

Introduction: I am a Masters student from the University of KwaZulu-Natal and I am doing research on Experiential Learning in Adult Education. In this study I aim to study how adult education can be a learning experience for long-term growth in this country and I aim to understand my case studies through my research. I am requesting that you give me permission to study the built form in order to extract information that would be meaningful to my research.

What is involved in the study: I would like to analyze the built form and site, by taking photographs, field sketches, notes, as well as conducting interviews. There is no risk for your institution, by conducting this research. On the contrary, if you decide not to allow permission, there will be no consequences. If you agree to take part, we hope that the information that we obtain will be used to improve architects understanding of the needs involved with the integration of people and to be able to translate those into positive architecture. You can choose not to allow access to restricted areas of the building.

Confidentiality: Efforts will be made to keep personal information confidential. Absolute confidentiality cannot however be guaranteed. For example, personal information may be disclosed if required by law.

Contact details – for further information please contact:

Researcher: Faizal Randeree: faizal.randz@gmail.com (073 261 3130)

Research Supervisor: Mthembeni Mkhize: mkhizem@ukzn.ac.za

Please sign below to indicate that you understand what I have explained to you and that you are willing to participate and provide me with the information I need.

_____

Signature of Researcher

_____

Signature of College Principal/Director

23/05/2014_____

Date

Mr. R. Cadir_____

Name

APPENDIX 2: PERMISSION TO CONDUCT RESEARCH: CASE STUDY TWO

(One copy to be left with the College Principal/Director; one copy to be kept by the Researcher).

THE IMPACT OF EXPERIENTIAL LEARNING IN DESIGNING BUILDINGS FOR ADULT EDUCATION: A Proposed Interactive Education and Training Centre in Durban

Introduction: I am a Masters student from the University of KwaZulu-Natal and I am doing research on Experiential Learning in Adult Education. In this study I aim to study how adult education can be a learning experience for long-term growth in this country and I aim to understand my case studies through my research. I am requesting that you give me permission to study the built form in order to extract information that would be meaningful to my research.

What is involved in the study: I would like to analyze the built form and site, by taking photographs, field sketches, notes, as well as conducting interviews. There is no risk for your institution, by conducting this research. On the contrary, if you decide not to allow permission, there will be no consequences. If you agree to take part, we hope that the information that we obtain will be used to improve architects understanding of the needs involved with the integration of people and to be able to translate those into positive architecture. You can choose not to allow access to restricted areas of the building.

Confidentiality: Efforts will be made to keep personal information confidential. Absolute confidentiality cannot however be guaranteed. For example, personal information may be disclosed if required by law.

Contact details – for further information please contact:

Researcher: Faizal Randeree: faizal.randz@gmail.com (073 261 3130)

Research Supervisor: Mthembeni Mkhize: mkhizem@ukzn.ac.za

Please sign below to indicate that you understand what I have explained to you and that you are willing to participate and provide me with the information I need.

ESAYIDI FET COLLEGE
PRINCIPAL PORT SHEPSTONE CAMPUS
Chris van Rensburg

2014 -05- _5

PRIVATE BAG X829
PORT SHEPSTONE 4240
TEL: (039) 685 4824/5

_____

Signature of Researcher

_____

Signature of College Principal/Director

05/05/2014_____

Date

Mr. Chris van Rensburg_____

Name

APPENDIX 3: INTERVIEW SCHEDULE

THEKWINI FET COLLEGE (CATO MANOR CAMPUS):

Learners:

1. Vusi Gumede – Engineering student
2. Thando Sibisi – Engineering student
3. Nondumiso Nxumalo – Business Management student
4. Tharyn Leah Chetty – Hairdressing student

Educators:

5. Mr. F. China – Engineering lecturer and practitioner
6. Mr. I. Patel – Engineering lecturer and practitioner
7. Mr. P. Sodje – Mathematics teacher

Higher Management:

8. Mr. V. Sharma – Head of the Engineering department
9. Mrs. M. D Harriram – Head of the Hairdressing, Hospitality and Business Management department

Architects:

10. Mr. M. A Gafoor of M. A Gafoor Architects – Principal architect of The Engineering Training Centre

ESAYIDI FET COLLEGE (PORT SHEPSTONE CAMPUS):

Learners:

1. Siyabonga Gumede – Engineering student
2. Simon Ngubane – Engineering student
3. Felicia Maduna – Business Management student
4. James Ntuli – Information Technology student

Educators:

5. Mr. L. Jooste – Engineering lecturer and practitioner

6. Mr. J. Viljoen – Mathematics teacher

Higher Management:

7. Mr. C. van Rensburg – Principal of the College

8. Mr. L. Groenewald – Head of the Engineering department

9. Mrs. A. Naicker – Head of the Business Management department

Architects:

10.   Mr. L. Maree of Level 7 Architecture Studio – Principal architect of the latest renovations to the College

APPENDIX 4: INTERVIEW TEMPLATE

<div align="center">

University of KwaZulu Natal

College of Humanities

School of the Built Environment and Development Studies

</div>

Research Supervisor: **Mthembeni Mkhize**

Research Student: **Faizal Randeree**

Project Title: **THE IMPACT OF EXPERIENTIAL LEARNING IN DESIGNING BUILDINGS FOR ADULT EDUCATION:**

A Proposed Interactive Education and Training Centre in Durban

Case Study and Location: _____

Subject: _____   **Location of Interview:** _____

General Information:

Name: _____   Contact Number: _____

Age: _____   Sex (Male/Female): _____

Ethnic Origin: Asian ☐   Black ☐ Coloured ☐   White ☐   Other ☐

Learner's Information:

Marital Status: _____   Dependents: _____

Occupation (detail explanation): _____

Level of Schooling: _____   Known Languages: _____

Acquired Skills (NQF Level): _____

Current Studies: _____

Educator/Management's Information:

Position: _____   Qualifications: _____

1. What is the average numbers of learners enrolled in, and qualifying from the courses? Comment on the pass rate, with possible reasons for the statistics.

2. What criteria is used for registration in the programs? Do you feel that the criteria is too lenient/strict? Comment on this.

3. What is the duration of the programs offered? Do you feel that the duration is suitable or could it be increased/reduced?

4. Is there sufficient space and facilities to accommodate for theoretical and practical learning? Comment on this, stating whether expansion or reduction is required.

   YES ☐   NO ☐   Theory Only ☐   Practical only ☐

5. What is the spatial balance and physical connection between the theoretical and practical learning spaces? Do you find this to be suitable?

6. Are learners actively involved in the learning processes (theoretical and practical learning)? If so, to what extent?

   YES ☐   NO ☐   Theory Only ☐   Practical Only ☐

7. Are the spaces provided accommodating for active learning on the part of the learners (theoretical and practical learning)? Comment on the spatial organization.

   YES ☐   NO ☐   Theory Only ☐   Practical Only ☐

8. Do you feel that learners benefit more via theory or practical? Comment on this.

   Theory ☐   Practical ☐   Both ☐

9. Are the skills and knowledge acquired by learners sufficient in gaining basic employment and adaptability in employment? Comment on this.

   YES ☐   NO ☐

10. Do you feel that the theoretical and practical learning facilities can be more effective to accommodate for modern, innovative methods of teaching/learning? Comment on this, with possible recommendations.

    YES ☐   NO ☐   Theory Only ☐   Practical Only ☐

11. Do you feel comfortable in such an educational environment with such groups of learners and their varying cultures/intellectual stances? Reasons being?

    YES ☐   NO ☐

12. Are the adult learners benefitting socially via interaction with other learners, irrespective of potential culture differences? Comment on this.

    YES ☐   NO ☐

13. Are there informal learning spaces for collaborative learning and interaction to take place? Give details and comment on the effectiveness of such spaces.

YES ☐   NO ☐

14. Are there resource/library facilities in order to gain knowledge at the learners' discretion? Comment on the effectiveness of these spaces.

YES ☐   NO ☐

15. Are the facilities shared amongst various fields? If so, are those specific spaces adaptable enough to accommodate for the different functions?

YES ☐   NO ☐

16. Can learners relate to, and feel comfortable in, the learning environment or does it create a sense of insecurity? What makes the learners feel this way?

YES ☐   NO ☐

17. Are learners able to move through the spaces without obstructions, thereby allowing the users to "experience" the entire learning environment? Comment on this.

YES ☐   NO ☐

18. Is the location of the campus appropriate for the communities for which it is meant to serve? Comment on this, with possible recommendations for the location.

YES ☐   NO ☐

19. Would the campus be more effective, being situated within a more vibrant/interactive educational context in the urban environment? Bearing in mind that residential accommodation could be provided.

YES ☐   NO ☐

20. Does the natural light and colours used in the spaces create an ambience and motivate learners? Comment on this.

YES ☐   NO ☐

APPENDIX 5: INTERVIEW – TYPICAL LEARNER

University of KwaZulu Natal

College of Humanities

School of the Built Environment and Development Studies

Research Supervisor: **Mthembeni Mkhize**

Research Student: **Faizal Randeree**

Project Title: **THE IMPACT OF EXPERIENTIAL LEARNING IN DESIGNING BUILDINGS FOR ADULT EDUCATION:**

A Proposed Interactive Education and Training Centre in Durban

Case Study and Location: Thekwini FET College (Cato Manor Campus)

Subject: Learner **Location of Interview:** At site

General Information:

Name: Vusi Gumede Contact Number: ---

Age: --- Sex (Male/Female): Male

Ethnic Origin: Asian ☐ Black ☑ Coloured ☐ White ☐ Other ☐

Learner's Information:

Marital Status: Single Dependents: One

Occupation (detail explanation): No

Level of Schooling: Matric Known Languages: English, IsiZulu

Acquired Skills (NQF Level): None

Current Studies: Engineering

Educator/Management's Information:

Position: _____ Qualifications: _____

1. What is the average numbers of learners enrolled in, and qualifying from the courses? Comment on the pass rate, with possible reasons for the statistics.

   I'm not certain of the number of learners enrolled - probably around 25 learners. I cannot comment on the pass rate.

2. What criteria is used for registration in the programs? Do you feel that the criteria is too lenient/strict? Comment on this.

   A matric certificate is required in order to do the Nated program. A grade 9 pass or higher is required to do the NCV (National Certificate Vocational) program.

3. What is the duration of the programs offered? Do you feel that the duration is suitable or could it be increased/reduced?

   Nated program: It is a 1 year program. NCV program: It is a 3 year program. I am doing the NCV program and feel that the duration is adequate.

4. Is there sufficient space and facilities to accommodate for theoretical and practical learning? Comment on this, stating whether expansion or reduction is required.

   YES ☒   NO ☐   Theory Only ☐   Practical only ☐

   There are plenty of classrooms to accommodate the numbers of learners. The practical facilities are well organized and maintained for all the learners to use.

5. What is the spatial balance and physical connection between the theoretical and practical learning spaces? Do you find this to be suitable?

   The workshops accommodate for the practical, whereas the classrooms within the classroom block close by accommodate for theory. Mobility is easy from one space to the other due to the pathways. This is ideal as the noise levels between the different learning spaces are substantially different.

6. Are learners actively involved in the learning processes (theoretical and practical learning)? If so, to what extent?

   YES ☐   NO ☐   Theory Only ☐   Practical Only ☒

   The practical training in the workshops require learners to be alert at all times and active, whereas the classrooms are typical arrangements as seen in most schools in the country.

7. Are the spaces provided accommodating for active learning on the part of the learners (theoretical and practical learning)? Comment on the spatial organization.

   YES ☐   NO ☐   Theory Only ☐   Practical Only ☒

Certain workshops have allocated spaces for each learner to train within, of which is appreciative.

8. Do you feel that learners benefit more via theory or practical? Comment on this.

   Theory ☐   Practical ☐   Both ☒

   Despite my previous comments, I certainly do appreciate the content learnt from the theoretical side.

9. Are the skills and knowledge acquired by learners sufficient in gaining basic employment and adaptability in employment? Comment on this.

   YES ☒   NO ☐

10. Do you feel that the theoretical and practical learning facilities can be more effective to accommodate for modern, innovative methods of teaching/learning? Comment on this, with possible recommendations.

    YES ☐   NO ☐   Theory Only ☐   Practical Only ☐

    No comment as I have not been accustomed to education and training done in other parts of the world.

11. Do you feel comfortable in such an educational environment with such groups of learners and their varying cultures/intellectual stances? Reasons being?

    YES ☒   NO ☐

    I tend to socialize with everyone, unless they speak other languages.

12. Are the adult learners benefitting socially via interaction with other learners, irrespective of potential culture differences? Comment on this.

    YES ☒   NO ☐

    See answer to question 11.

13. Are there informal learning spaces for collaborative learning and interaction to take place? Give details and comment on the effectiveness of such spaces.

    YES ☒   NO ☐

    There isn't much designated space for learners to interact and possibly learn together. However, it is certainly more adequate than other FET Colleges that I have seen.

14. Are there resource/library facilities in order to gain knowledge at the learners' discretion? Comment on the effectiveness of these spaces.

    YES ☒   NO ☐

15. Are the facilities shared amongst various fields? If so, are those specific spaces adaptable enough to accommodate for the different functions?

YES ☐   NO ☒

There are separate facilities for each field.

16. Can learners relate to, and feel comfortable in, the learning environment or does it create a sense of insecurity? What makes the learners feel this way?

YES ☒   NO ☐

It is open and airy, and ties in with the surrounding environment of which I come from.

17. Are learners able to move through the spaces without obstructions, thereby allowing the users to "experience" the entire learning environment? Comment on this.

YES ☒   NO ☐

There is a decent connection between facilities, having an abundance of defined paths, as well as bridges crossing the river from one department to the other.

18. Is the location of the campus appropriate for the communities for which it is meant to serve? Comment on this, with possible recommendations for the location.

YES ☒   NO ☐

However a concern is that generally people get lost trying to locate the campus, as well as the fact that it is difficult for some learners to get public transport to the campus.

19. Would the campus be more effective, being situated within a more vibrant/interactive educational context in the urban environment? Bearing in mind that residential accommodation could be provided.

YES ☒   NO ☐

Having a good transport system, the city would certainly be preferable. Also, it will allow us to have a multitude of activities to our disposal around the city.

20. Does the natural light and colours used in the spaces create an ambience and motivate learners? Comment on this.

YES ☐   NO ☒

APPENDIX 6: INTERVIEW – TYPICAL EDUCATOR/HIGHER MANAGEMENT

University of KwaZulu Natal

College of Humanities

School of the Built Environment and Development Studies

Research Supervisor: Mthembeni Mkhize

Research Student: Faizal Randeree

Project Title: **THE IMPACT OF EXPERIENTIAL LEARNING IN**

                                   DESIGNING BUILDINGS FOR ADULT EDUCATION:

                                   A Proposed Interactive Education and Training Centre in Durban

Case Study and Location: <u>Thekwini FET College (Cato Manor Campus)</u>

Subject: <u>Educator</u>   **Location of Interview:** <u>At site</u>

General Information:

Name: <u>Mrs. Frazer China</u>   Contact Number: <u>---</u>

Age: <u>60</u>   Sex (Male/Female): <u>Male</u>

Ethnic Origin: Asian ☐   Black ☐ Coloured ☒   White ☐   Other ☐

Learner's Information:

Marital Status: _____   Dependents: _____

Occupation (detail explanation): _____

Level of Schooling: _____   Known Languages: _____

Acquired Skills (NQF Level): _____

Current Studies: _____

Educator/Management's Information:

Position: <u>Lecturer in Engineering</u>   Qualifications: <u>Qualified Artisan</u>

1. What is the average numbers of learners enrolled in, and qualifying from the courses? Comment on the pass rate, with possible reasons for the statistics.

   There are generally approximately 24 learners enrolled in the course. The pass rate is roughly 60%, which is quite reasonable. The learners are showing signs of determination in the workshops.

2. What criteria is used for registration in the programs? Do you feel that the criteria is too lenient/strict? Comment on this.

   Learners need to have a matric certificate in order to do the Nated program. Learners require a grade 9 pass to do the NCV (National Certificate Vocational) program, which commences with fundamentals.

3. What is the duration of the programs offered? Do you feel that the duration is suitable or could it be increased/reduced?

   It is 1 year for the Nated program and 3 years for the NCV program (accommodates for ABET as well). The NCV program comprises of NQF level 2 to NQF level 4 qualifications for each year respectively. I feel that the duration of both programs are too short.

4. Is there sufficient space and facilities to accommodate for theoretical and practical learning? Comment on this, stating whether expansion or reduction is required.

   YES ☑   NO ☐   Theory Only ☐   Practical only ☐

   I think what we have here for the basics is adequate as far as practical is concerned. We have power tools, measuring tools, and so forth, to accommodate for the amount of learners. There is enough space for the theoretical side as well.

5. What is the spatial balance and physical connection between the theoretical and practical learning spaces? Do you find this to be suitable?

   There is an equal space allocation between theoretical and practical learning spaces. Both are done within the same room/workshop, side-by-side. It is suitable given that both types of learning do not operate at the same time.

6. Are learners actively involved in the learning processes (theoretical and practical learning)? If so, to what extent?

   YES ☐   NO ☐   Theory Only ☐   Practical Only ☑

   There is demonstration and simulation within the practical side of which the learners are coping with and enjoying. The problem comes in when learners

cannot identify the tools/best suited tools used for the task. In theory, they are not that involved as they sometimes cannot understand and relate to the terms use.

7. Are the spaces provided accommodating for active learning on the part of the learners (theoretical and practical learning)? Comment on the spatial organization.

   YES ☐   NO ☐   Theory Only ☐   Practical Only ☑

   In the practical side, there is sufficient tools for the learners to be actively involved. The organization of the space isn't done well though. With regard to the theoretical side, the learning is passive with the furniture arrangement having desks/chairs facing the educator at the front with minimal participation.

8. Do you feel that learners benefit more via theory or practical? Comment on this.

   Theory ☐   Practical ☑   Both ☐

   They tend to learn more via practical due to their drive to be more involved. When I give them material to read through, they don't seem interested.

9. Are the skills and knowledge acquired by learners sufficient in gaining basic employment and adaptability in employment? Comment on this.

   YES ☑   NO ☐

   The skills offered is certainly in demand. For example, in many steel manufacturing companies there is need for artisans.

10. Do you feel that the theoretical and practical learning facilities can be more effective to accommodate for modern, innovative methods of teaching/learning? Comment on this, with possible recommendations.

    YES ☑   NO ☐   Theory Only ☐   Practical Only ☐

    We are aware of global trends in engineering training and if the finance was there we could improve the level of training. We are limited because of that.

11. Do you feel comfortable in such an educational environment with such groups of learners and their varying cultures/intellectual stances? Reasons being?

    YES ☐   NO ☑

    There is often the case of many learners not understanding the scientific and technical terms that I use – like "parameter, "circumference", and so forth. One obvious reason being that they struggle with the English medium.

12. Are the adult learners benefitting socially via interaction with other learners, irrespective of potential culture differences? Comment on this.

YES ☐   NO ☑

Within and outside the learning spaces there isn't much socializing.

13. Are there informal learning spaces for collaborative learning and interaction to take place? Give details and comment on the effectiveness of such spaces.

YES ☐   NO ☑

This is the reason why learners tend to loiter around just outside the classrooms and workshops.

14. Are there resource/library facilities in order to gain knowledge at the learners' discretion? Comment on the effectiveness of these spaces.

YES ☑   NO ☐

No comment.

15. Are the facilities shared amongst various fields? If so, are those specific spaces adaptable enough to accommodate for the different functions?

YES ☐   NO ☑

The spaces are allocated to the respective courses.

16. Can learners relate to, and feel comfortable in, the learning environment or does it create a sense of insecurity? What makes the learners feel this way?

YES ☑   NO ☐

I would think so because they seem to be comfortable in my class, especially when they are wearing the PPE (personal protective equipment). They have a sense of "want", in that they are achieving something.

17. Are learners able to move through the spaces without obstructions, thereby allowing the users to "experience" the entire learning environment? Comment on this.

YES ☑   NO ☐

There is a good network between the Training Centre, as well as the College on a whole. Learners are able to be mobile throughout the campus.

18. Is the location of the campus appropriate for the communities for which it is meant to serve? Comment on this, with possible recommendations for the location.

YES ☑   NO ☐

If you consider Chesterville being close by, as well as other townships of which learners are drawn from. The College is quite central.

19. Would the campus be more effective, being situated within a more vibrant/interactive educational context in the urban environment? Bearing in mind that residential accommodation could be provided.

YES ☑   NO ☐

That is definitely a good option. I'll support that idea.

20. Does the natural light and colours used in the spaces create an ambience and motivate learners? Comment on this.

YES ☑   NO ☐

There is sufficient lighting – natural and artificial – which assists in keeping the learners on their toes.