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The re-use of the UP Mamelodi campus and the stitching together of landscapes as a vehicle for empowerment
Ida Breed, for your patience, encouragement, dedication and advice.
Nico Botes, for your uncanny ability to inspire and provide direction even when it felt as though there was none. I always leave your office feeling like ‘I can’.
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learn 2 live
live 2 learn

The re-use of the UP Mamelodi campus and the stitching together of landscapes as a vehicle for empowerment

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Mamelodi is a multi-cultural township located 20kms east of the Tshwane city centre. It is a vibrant and complex place, alive with opportunity, diversity, talent and creativity. It is also however, afflicted by many problems, especially those of a social and economic nature, like unemployment, poverty, poor living conditions, and so on. Mamelodi therefore, is a place where the implementation of appropriate design could make a real difference in the lives of its inhabitants.

The University of Pretoria Mamelodi campus, due to its prime location and inherent qualities, has the opportunity to contribute significantly to the upliftment and transformation of the people around it, and to become a place of value and pride. It is however, missing this opportunity for a number of reasons: the isolation and segregation of the campus, its anonymity and lack of local identity, as well as the inaccessibility of the campus to local residents. One possible solution would be the full integration of the campus into the surrounding community, thereby enabling the empowerment of people on both a physical and psychological level.

Both of these types of empowerment can be achieved through modifications to the University boundaries and the reworking of the open buffer zone into an area of common ground – a transition zone where the University and the community can come together and be of value to one another. There are two levels of value – quantitative, which can be achieved through the implementation of a cultivated landscape, and qualitative, which is made possible through the creation of a maieutic landscape.

In order to achieve a continuous, integrated urban fabric, this study primarily investigates the creation of a large-scale framework design that considers the site in its entirety. The organising element in this regard was the existing storm water system which was also regarded as a missed opportunity. The study then progresses to a more detailed level in an area which was deemed to possess challenging and diverse options.

The space chosen is located at the entrance to the UP Mamelodi campus library, in the transition zone between University and community, where it functions as a public square. Both the principles of integration and maieusis were applied here in a bid to create an empowering landscape that is immersed in its context, that is accessible, and that is therefore used and appreciated by many.
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chapter 1
Part 1: Setting the scene

Townships in South Africa are not unlike *ghettos* found all over the world. They are also however, complex, vibrant places housing different people from different cultural backgrounds, different income groups, different language preferences, and different value and belief systems. They are places filled with challenges, opportunity, ingenuity and creative thought.

Although townships are multifaceted, dynamic places to live, bursting with culture and life, they are also unfortunately fraught with a myriad of problems. These include a lack of infrastructure, overcrowding, unemployment, HIV-Aids, poverty, urban sprawl, and a general lack of amenities, to name but a few.

Mamelodi is a township situated on the eastern edge of the Tshwane district. It was created during the Apartheid era as a means of separating the African population from the rest of the city (Le Roux, Louw & Nel, 1980:ii). Due to the precise placement of this township, buffered by the Magaliesberg mountain range in the north, it still remains partially segregated and on the outskirts of the city. This division from thriving commercial areas has resulted in the fact that people living there have to travel substantial distances in search of work, ensuring that they spend much time away from home; a situation which is both inconvenient and has contributed to many social issues.

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1. Ghetto
A part of a city, especially a slum area, occupied by a minority group/a segregated group or area (Thompson, 1998:570).
Mamelodi also has a severe shortage of open space and the houses in this area are built with extensive back gardens in which to play, relax and de-stress.

There are plenty of open spaces within the city fabric but these are simply leftover spaces which have become voids and do not contribute anything positive to the functioning of the township. Instead, they are desolate and neglected spaces with no elements of human scale, rendering them inhospitable; spaces that breed crime and are used as nothing more than dumping grounds. These areas contribute more to the problems of Mamelodi than to the solutions.

Part 2: The real world problem

As shown in the above paragraphs, Mamelodi has a great many needs and shortcomings which have to be addressed, and the University of Pretoria Mamelodi campus, because of its prime location and inherent qualities, has the opportunity to make a real difference. The campus has the ability to significantly aid and empower the people of Mamelodi and to become a place of value, distinction and pride. At present, however, the campus is not being used optimally. It functions as an obstruction in the urban fabric; an insular element with insufficient students which has become almost meaningless to the people around it.

According to Keast (1967:13), "an important criterion for evaluating campus plans would be to ask whether the campus encourages the maximum number of impromptu encounters with other students, with other faculty members, with visitors, with works of art, with books and with activities of which one is not usually a regular part". A lack of ‘encounters’ at the UP Mamelodi Campus can be attributed to two main factors:

2.1) The isolation of the campus
The campus is completely cut off from its surrounding landscape by a double security fence as well as a large buffer zone of open land which runs all the way around the campus heart. This separateness enforces the idea that the university is an elitist institution for use only by a privileged few. It is an insular island which serves as both a physical and metaphysical division between different economic classes.
The campus has inverted itself in a typical laager formation, turning its back on the surrounding community and shutting them out, resulting in the fact that the University has become insignificant to the people. This is evidenced by the dumping ground which has been established just outside the double fence enclosing the University; a prime example of the outcomes of the institution’s physical separation from its immediate surroundings (see Figure 11).

Gerrit Jordaan (2008), urban planner for the University of Pretoria is quoted as saying, “A city around a University and a University within a city are two completely different things”. Integrating the University into its surrounding community will increase the potential for people to benefit not only from the services provided, but also from a day to day interaction with the facilities on offer.

2.2) The anonymity of the campus
The campus suffers from a complete lack of local identity. It says nothing about its context, about the people that use it or about its history. It could be this placelessness and lack of character which contribute to the shortage of students. There is no pull factor – why go to the Mamelodi campus when you can use main campus, with all its events, artworks, facilities and cultural activities, for the same amount of money?
Another factor which contributes to this is the physical campus layout. The UP Mamelodi campus was previously Vista University campus, and was incorporated into the University of Pretoria on the 2 January 2004, as part of the national government's restructuring of higher education program (University of Pretoria, 2008). The treatment of the previous Vista University Campus’s nationwide is a prime example of the de-contextualised design process decried by Oktay (2002: 266), who says that the use of universal design standards denies a place its sense of identity and genius loci. Relph (in Walmsley & Lewis, 1984:161) agrees with Oktay and states that uniform planning is destroying localism and creating homogenous landscapes. “Planners are creating a placeless geography and fostering a sense of placelessness [where] man has no sense of awareness of the deep and symbolic significance of places and no appreciation of the role of places in his own identity”. The university can therefore be accused of not contributing to either the identity or the wellbeing of the people who need it most.

“A deep human need exists for associations with significant places. If we choose to ignore that need, and allow the forces of placelessness to continue unchallenged, then the future can only hold an environment in which places simply do not matter. If, on the other hand, we choose to respond to that need and transcend placelessness, then the potential exists for the development of an environment in which places are for man, reflecting and enhancing the variety of human experience” (Relph, 1976:147).

In other words, the University can thrive when it is used, loved and ‘owned’ by the people living there, and this can happen when the campus gains an identity that the people can relate to and feel comfortable in. Friedberg (1970:151) hits the nail on the head when he says that pride and identification cannot be built with second-hand materials. If anything, a deteriorated community with deteriorated morale needs a facility that is better than elsewhere; something that is unique; a place of distinction.
2.3) The inaccessibility of the campus
This brings us to the third major problem on the UP Mamelodi Campus: the fact that a university as we currently know it is a closed, prescriptive and elitist institution. It is therefore inaccessible and meaningless to many of the surrounding residents as they are unable to attend University, whether it is for financial reasons, insufficient educational qualifications, or simply a lack of information.
In the 43rd pattern: University as a Marketplace, Alexander, Ishikawa & Silverstein (1977:232) condemn “concentrated, cloistered universities with closed admission policies and rigid procedures which dictate who may teach a course”, as these kill any opportunities for learning. Rather universities should become marketplaces which are open and public and woven throughout the city, allowing any and all with the will to learn, this opportunity.

The campus as it stands is the incorrect institution for its context, and the University has, to an extent, realized this. It is in the process of implementing community service and outreach programs (University of Pretoria, 2008) which will contribute to the solution, but will not completely solve the problem and create a continuous urban fabric. These Community Engagement policies are however definitely a step in the right direction and provide something upon which to build a fully engaged community facility that will benefit the people as a whole, create opportunities and improve lives.

Part 3: Research goal and problem statement

Research goal:
The creation of a landscape that empowers people, both physically and psychologically, that adds meaning and value, and that fosters a sense of community. A landscape that challenges accepted methods of education, and attempts to integrate life and learning. An innovative landscape that is grounded in its context and speaks of the identity of its people.

Problem statement:
The current layout and design of the UP Mamelodi campus does not reflect its physical and social context, thereby limiting its interaction with and understanding of the needs of the people living and working around it.
Part 4: Sub-problems / research questions

How can the landscape be used as a means of education?
   Education = knowledge. What is knowledge, and how does one accumulate it?
   Can the landscape become a ‘teacher’?
   How can a landscape challenge current ideas and contribute to the rectification thereof?

How can one create a landscape that empowers people?
   What is the meaning of empowerment?
   How can the landscape become a tool for the empowerment of people?
   Are there different types of empowerment?

How can a landscape foster community spirit and a sense of unity?
   What is a ‘community’?
   How does a landscape contribute to the building of a community?
   Can the landscape be used as a means of encouraging community participation?

How can identity in the landscape be achieved?
   What is ‘identity’ and what does it mean to different people?
   How does the identity of place relate to or influence the identity of an individual person?
   What is the relationship between identity and place-making?

Part 5: Hypothesis

A landscape has the ability to empower people both physically and psychologically. This can be achieved through context specific design that responds to the social, economic and political needs of the area and its people.

Part 6: Assumptions and delimiters

Assumptions:
The author assumes that the future plans of the University of Pretoria regarding community engagement will go ahead as planned (as per the UP website). NGO’s will move onto the campus and it will function as a practical training ground for students. Furthermore, the author assumes that the University is willing to contribute to the upgrade and rejuvenation of the UP Mamelodi Campus in any way possible. The author also assumes that the proposed building line specifications and zoning of areas on and around the campus will be approved by council.

Delimitations:
The author is basing all decisions on the current physical, social and economic context of Mamelodi. The Tshwane IDP will be incorporated, as far as possible, and the design will try to predict future expansion, but it primarily attempts to solve problems existing in the area in 2008.

The author will be focusing primarily on the identity of place as opposed to the identity of individuals, but will discuss the effect of place identity on one's individual identity.
Part 7: Touchstone - a sculptural metaphor depicting the UP Mamelodi

Before intervention:
Isolated
Expressionless
Lacking identity
Demoralised
Static and sterile
Rigid
Lacking life
Anonymous
Neglected

After intervention:
Ephemeral and alive
Flowing outwards
Full of expression
Integrated into; connected with
Complex and colourful
Fertile with ideas
Brimming with creativity
Possessing an identity
A metaphor for life
Part 1: Introduction

Throughout the following document, the ‘community’ will be mentioned many times. It is therefore important to define what is meant by ‘community’ and its role in everyday life. (See Appendix 1) According to Ferrinho (1980:5), a community can essentially be described as a group of people with one or more element in common. These elements bring about the formation of a bond between these people, and the more common elements there are, the stronger the bond will be. The human race is essentially one large community, broken up into many smaller communities. Each community has specific qualities that differentiate it from other communities, and individuals are part of many different communities throughout their lives as their needs change.

According to Maslow (in Walmsley, 1988:59), there are six main needs in life. (See Appendix 2) He believes however, that higher order needs cannot be fully realized until lower order needs have been met. This is true to a certain extent, but these needs are not mutually exclusive; the world does not work precisely according to a hierarchical triangle. Every human being has basic concrete needs like food, water, clothing and shelter, and basic abstract needs such as self-reliance, happiness and human dignity. Whilst people are striving to fulfil their concrete needs, their abstract needs are sometimes neglected. Such needs are, however, integral to development and growth.

Hamdi (2004:15) says that “human wellbeing is as important to economic growth as growth is to wellbeing”. Abstract needs must therefore also be satisfied in order to achieve the equilibrium necessary for ideal development. A hungry stomach or the need for a safe place to sleep will usually come before the need to express oneself through painting, but this does not render the need for art invaluable. In fact, many people use creative avenues of expression as a means of dealing with their lack of lower order needs. Any intervention therefore, that satisfies both types of needs is ideal, and such a solution will doubtless be better than one which meets concrete needs only.

Figure 19: An illustration of the various needs of all human beings (Author, 2008)
How then can the University contribute to the provision of needs in general? The introduction of an educational ‘curriculum’ which is accessible to all people and empowers them so that they are able to fulfil their own needs could be a first step. According to Illich (in Alexander et al, 1977:101), institutions should be channels to which anyone wishing to learn has access without credentials or pedigree; public spaces in which peers and elders outside that person’s immediate environment now become available. What is needed is an area of exposure; a place of encounters; a platform for community development.

Another ideal opportunity presents itself in the zone of barren land surrounding the university heart. A possible solution would be to shrink the actual campus and encourage densification of the university within these boundaries. The outer space could then become a transition zone between the residential areas and the campus; an in-between space which functions as the stitch that knits together the university and the community. It is in this open space that the university and the public become of value to one another; where they can come together to learn and grow, thereby creating a fully integrated community.

Part 2: The importance of designed public open space

2.1) The building of communities
Carr et al (in Oktay, 2002:263) believes that public open space provides an integral place for people to carry out the functional and ritual activities that bind a community together. In densely populated areas, like Mamelodi, public outdoor spaces are sometimes the only places where people can come together and share the same ‘room’ regardless of background, age, ethnicity or economic status. Such spaces reinforce communal bonds and promote social equality and democracy; they are a necessary part of everyday life. These spaces “…promote a sense of place, become a source of community pride, and offer opportunities for people to play an active part in caring for the local environment” (Tshwane Open Space Framework, 2005:96).

Figure 20: Relaxing under the shade of a tree in Church Square (Author, 2007)

Figure 21: Enjoying the sunshine and people watching in Strijdom Square (Author, 2007)

work
play
sleep
relax
gather
wait
eat
meet

Figure 22: Impromptu puppet show in Church Square (Author, 2007)
2.2) The protection of the environment
The promotion of environmental awareness is an integral element of landscapes today. We are currently experiencing a *global crisis* which will have disastrous consequences for all humanity if it continues unchecked. It is our responsibility to educate people about the sustainable use of our natural surroundings. Gallagher (1993:214) explains that all people need restorative experiences with plants, water and trees — things that will always be — universal elements. The landscape plays an integral role in fostering a global appreciation of the importance of these universals to our well-being, and this is a vital step in securing their future. In order to make an impact, people need to understand the power of nature, and for this to occur, they need to experience it, interact with it and question it. They need to become a part of it, not only for the sake of environmental conservation, but also because “nature is a human need” (Gallagher, 1993:202).

2.3) The restorative value

“In the stress of urban living, overcrowding, traffic, overload of stimulation, lack of peace and quiet, all take their toll. In walking from one place to another one must discriminate, screen out extraneous stimuli, and pay attention only to those signals that are relevant to the journey. The mental faculty that performs this screening becomes fatigued. Vegetation serves as a shock absorber for the human sensory system assaulted by the smells, sounds and sights of the city. It does not present a challenge to the senses, does not have to be screened out, but provides an opportunity for rest from the constant mental alertness” (Kaplan in Francis & Hester, 1990:246).

According to Gallagher (1993:202), “nature excites our senses, restores our nerves, invites us to play, enhances our social bonds, and supplies meaning and metaphor to our lives.” It is thus evident that human beings need public parks and natural settings in order to function optimally within their current frenetic lives. A public space encourages communal bonding, supports the fact that everyone is part of the bigger picture, and reinforces the idea of Ubuntu, i.e. you are human through other humans.

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2. Global crisis:
This crisis includes interdependent problems such as global warming, climate change, ozone depletion, vanishing biodiversity and many more. Coupled with the earth's growing scarcity of resources and its decreasing ability to support its ever-increasing population, the future looks bleak. Our communities and the larger human enterprise rest upon the often-invisible foundation of natural systems, and if we do not rethink the manner in which we use these natural systems, we will alter them forever (Dumanoski, 2001).
2.4) The creation of a catalyst
Through the creation of beautiful and functional green spaces, we may also inspire others to do the same, thereby creating an enhanced living environment for all and encouraging community interaction and participation. South Africa can learn from the approach of the Guarapiranga Urban Rehabilitation Program in Sao Paolo, which aims to assimilate slums into the city by providing well-maintained, high quality and innovative community spaces that, in turn, promote private investment in homes, businesses and leisure activities. These spaces encourage social and civil integration, and environmental decline is gradually replaced by the perception of progress (Hindes & Osman, 2005:60).

These designed public open spaces therefore function as catalysts which encourage development and growth. Aesthetically pleasing and dignified environments are not the exclusive domain of the affluent. They are equally as important in disadvantaged communities where they can make a big difference to the quality of life of the people in these areas, as well as to their feelings of identity and self worth.

**Part 3: The importance of identity**

Identity is about belonging; about what you have in common with some people and what differentiates you from others. At its most basic it gives you a sense of personal location; the stable core to your individuality (Weeks, 1990:88). According to Thompson (1996:674), identity is “the quality or condition of being a specified person or thing”. It is informed by the relationships that occur between different people as well as between people and place.

Krupat (in Dixon & Durrheim, 2004:457) supports this by stating that “an individual’s sense of self arises in part through his/her transactions with the material environment” thereby suggesting that such environments “do not simply serve as settings for individuals’ activities, actions or behaviours but are instead actively ‘incorporated’ as part of the self”. Korpela (in Dixon & Durrheim, 2004:458) agrees and says that only once these physical settings have been actively and imaginatively incorporated can individuals create environments where self-coherence, self-worth and self-expression can be pursued.

Places with a specific identity are therefore integral to the formation of personal identity. Places allow people the freedom and confidence to be themselves, they encourage interaction with other people and in so doing inform personal identities even more. As Walmsley (1988:68) says, “places become reservoirs of significant life experiences and thereby lie at the centre of a person’s identity and sense of psychological well-being”.

Figure 25: Public park - Guarapiranga - promotes community integration, pride and a sense of ownership (Hindes & Osman, 2005:61)

Figure 26: Camden Town, London - The shops, people, clothing, decor - everything speaks the same language and has the same identity (Author, 2008)
“Identity can and should be the basis for long-term, successful place-making; a process that nurtures local distinctiveness and pride in place” (Cumberlidge & Musgrave, 2007:144). This is backed up by Pugh (2000:334) who is of the opinion that both spontaneous and formal improvement can be enhanced by encouraging the expressiveness of life, art, design, and other such humanly commitments. People attribute meaning to a place when they can see themselves and their daily lives in the design; when they can identify with specific elements. This is further enhanced if they were personally involved in the creation of these spaces.

Part 4: Community involvement and participation

According to Swanepoel & de Beer (1996:24-29), there are eight principles of community development:

- Principle of participation (involve EVERYONE - poor, rich, educated, not. Everyone has something to contribute);
- Principle of abstract human needs (provide for both concrete needs AND abstract needs);
- Principle of learning (there is no teacher, everyone learns from everyone else);
- Principle of empowerment;
- Principle of ownership;
- Principle of release (do not aim to bring relief, but rather to free people from their trap. Once free they can gradually improve the situation themselves);
- Principle of ‘adaptiveness’ (flexible experimentation and a willingness to learn on the part of everyone involved);
- Principle of simplicity (big sophisticated complex projects limit the scope for learning and participation).

Figure 27:
Participation of the community in the design and construction of Thokoza Park, Soweto provides an aesthetic that people can identify with (Author, 2008)

Figure 28:
Community painted murals in Ivory Park, Ekhuruleni foster a sense of pride and ownership (Author, 2008)
In the author's opinion, the principle of participation is one of the most important principles. If it is followed, many of the other principles will occur naturally. For example, if the community is allowed to participate, they will automatically learn new skills and teach one another things, thus empowering themselves and others, and creating a sense of ownership at the same time.

This process of participation reawakens a spirit of community and encourages bonds between different people, between people and their environment, and between people and themselves. It serves to liberate feelings of self-worth, self-fulfilment and pride, in both the place, and in the people themselves and their achievements. These methods attempt to build a community that holds the capacity to initiate its own changes, and to continue developing and transforming itself.

This redefinition of design and planning as part of the process of enablement is the only way of proceeding with the changes that are necessary on the UP Mamelodi campus. Hamdi (2004:xvi) says that we can only begin to make progress and to grow when we are secure enough in ourselves, individually or collectively, to be interdependent; when ‘I’ becomes ‘we’ and when ‘we’ is inclusive of ‘them’. It is for exactly this reason that the concept of community needs to be encouraged and built-up; communities together have more resources, more voices, and more hope than one man alone.

Community involvement and participation also acts as a means of education. An education that encourages new experiences, stimulates conversation and thought, and fosters an appropriate, integrated method of learning.

Part 5: Rethinking the idea of a University

Ferrinho (1980:83) states that “the school does not only exist to perform an academic task, divorced from the surrounding world of living reality, but exists also to meet the felt needs of the people. When a school and community interact in this way, the community activates the school, and the school activates the community.” This is precisely the approach needed to reactivate the UP Mamelodi campus - a facility that is context appropriate and provides for the everyday educational needs of its surrounding community. After all, much of a person's education occurs outside and separate from the formal courses in which he/she is registered, and only a university which stimulates curiosity, and prompts casual encounters and conversation will produce a true education in the broadest sense (Keast, 1967:13).

Alexander et al (1977:232), some thirty years ago, discussed the need for a university which would treat the learning process as a normal part of adult life for all people in society. This vision, however, was not realised, especially not in places like Mamelodi where it is needed most. As Gallagher (1993:128) says, “we find that what started out as ‘a way’ has somehow turned into ‘the way’. It seems that once the environmental particulars of a modus operandi work their way into the nervous system, they help close our minds to better options and incline us towards knee-jerk reactions”.

A society that emphasizes teaching, breeds children, students and adults who are passive and unable to think or act for themselves. Creative, active individuals can only grow up in a society which emphasizes learning instead of teaching (Alexander, et al, 1977:100). This statement is backed up by Hamdi (2004:xxv), who criticizes the fact that “knowledge is valued more than experience or understanding. He explains that rationality and factual evidence are more rewarded than creativity because they are easier to measure”, and that these things are a “barrier to learning”.

Creative, self-motivated learning as opposed to prescriptive teaching is therefore the key. Walmsley (1988:12) says that “human beings are naturally inquisitive animals. They seek out and assimilate information above and beyond what is necessary for day-to-day living. This inquisitiveness enables individuals to elaborate on their model of reality as well as to test its reliability”. This is the type of learning we should be encouraging; one which helps people to help themselves. We need to bring back the idea of open education - schools without walls, where knowledge is “discovered” by the learner through group interaction, the blending of different subjects and skills, and questioning, rather than teacher-centred instruction where knowledge is “presented” to a learner via lectures, textbooks and testing (Cuban, 2004).

Appleyard (in Walmsley, 1988:21) notes that there are three distinct sorts of environmental knowledge, namely operational knowledge which allows you to go about your daily life, remembering what route to take, where to find things, etc. Responsive knowledge which comes about as a result of individuals responding to a striking feature in the physical environment (extends beyond the visual to include sounds and smells). And inferential knowledge, which does not come from direct experience, but rather from the ability to extrapolate beyond what is actually known and to make probabilistic inferences about things that have not yet been experienced. The landscape should therefore aim to accept the operational, stimulate the responsive and encourage the use of the inferential.

Coombs and Ahmed (in Ferrinho, 1980:82) discuss three modes of education – informal, formal and non-formal. Informal education is spontaneous and relies upon television, personal contacts, etc. Formal education is highly institutionalised and programmed, i.e. conventional schools. And non-formal education is organized, but the content varies with the needs and demands of the learners. A true community school should be able to successfully integrate these three types of education, and this is what the UP Mamelodi campus must aim towards.
It has thus been ascertained that the UP Mamelodi campus functions as an island in the midst of its community; a community which is in real need of education and guidance and could benefit substantially from the input of such an institution. The importance of designed public open space, the value of local identity and pride, and the essential need to involve the community in the development process from the beginning have also been discussed. If applied, these four points have the ability to empower members of the community, be it in a physical or psychological capacity.

The Mamelodi University campus has the power to become a facilitator of this empowerment; a vehicle for change; an institution that uplifts its community and becomes an integral part of its everyday functioning. This could be achieved by rethinking the functioning of the open buffer zone surrounding the University heart. Instead of being ‘dead space, this area could be transformed into a landscape of value, both to the University and to the surrounding community. It could function as the common ground; a transition zone where the University and the community can come together and be of value to one another.

There are two different types of value, qualitative and quantitative, and this transition zone has the ability to accommodate both, thereby ensuring a richer, more experiential landscape; a landscape of meaning.
If implemented, this landscape of value will connect and integrate the University with its surroundings, as well as enabling the University to progress from being an island to becoming a catalyst for growth and development at the heart of the community. By using existing resources, such as stormwater channels and the rich and diverse culture and abilities of the surrounding people, such changes can be easily achieved.

The university as a facilitator; a vehicle for empowerment, both physical and psychological.
The university as a means for building relationships and creating connections.
The university as the heart of the community; an integrated whole...

Figure 31: Conceptual ideas on the improvement and integration of the UP Mamelodi campus (Author, 2008)
The transition zone between the residential areas and the formal campus should be transformed into a landscape of life. A landscape that becomes a solution, a provider, an educator, a catalyst for change, a platform for opportunity... This can be achieved through the design, detailing and spatial orientation of the interventions; by adding value to the area on both a quantitative and qualitative level. These two elements, quantitative and qualitative, are interdependent; one will not function optimally without the other, as shown in Figure 32 above. Quantitative value can be achieved through the design and implementation of a cultivated landscape, while qualitative value is obtained by creating a place of identity - a maieutic landscape (refer to Figure 32).

The maieutic encourages pride and ownership, ensuring that the landscape will be maintained and cared for, while the cultivated landscape ensures appreciation on a functional and practical level. Gallagher (1993:218) believes that “over time, individuals ... will come to prefer - even enjoy – the elements of natural environments that have increased their ability to function, and that pleasure motivates further awareness of those stimuli.” Therefore, the design as a whole boosts the well-being of the community, thereby motivating further awareness and appreciation of the landscape.

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3. Maieutic:
Serving to bring a person’s latent ideas into clear consciousness (Thompson, 1996:821). Refer to page 20 for a more detailed explanation.
Part 2: The Cultivated Landscape

The cultivated landscape is educational in that it teaches people basic skills on how to plant, grow, harvest and utilise their produce. This incorporates the community in a working nutrition program while at the same time offering them with a sustainable form of income. Existing storm water channels will be manipulated in order to feed the food gardens, nurseries and medicinal gardens providing the produce. These gardens can also act as catalysts leading to bigger and better things, for instance, the development of small businesses like cafes, composting centres and markets as shown in the diagram above.

These interventions also present an opportunity for the community to participate in the creation of something meaningful. As Hamdi (2004:21) says, we should “liberate the latent potential of the everyday” by making the ordinary special and the special more accessible (Hamdi, 2004:xix). Gardens are one of the best ways of doing this as they “represent fast, highly visible changes that serve as neighbourhood rallying points. Reports on the effects of gardening projects, particularly in low income neighbourhoods, give evidence of increased neighbourliness leading to an enriched sense of community” (Lewis in Francis & Hester, 1990:247). This functional landscape also provides time for contemplation, relaxation and reflection, and can be psychologically beneficial in itself. “Through peace and tranquillity, enhancement of self-esteem, demonstration of long and enduring patterns in life, [and] connectedness to larger concepts, gardens and gardening are healing” (Lewis in Francis & Hester, 1990:250).
Part 3: The Maieutic Landscape

Maieutic landscape

- experience and interaction

becomes a place you can relate to; a place with meaning

landscape becomes incorporated as part of one's self

takes on an identity which, in turn, informs personal identity

becomes an environment where self-coherence, self-worth and self-expression can be pursued

instills a sense of pride and ownership

Figure 35: Conceptual idea of how a maieutic landscape can influence a person's experience of a place (Author, 2008)

Figure 36: Diagrammatic representation of the meaning of ‘maieutic’ (Author, 2008)
Maieutic is defined as that which “serves to bring a person’s latent ideas into clear consciousness” (Thom, 1996:821). Mamelodi, because of its social infrastructure and the hardships that people endure on a daily basis, is in need of elements which stimulate ideas of self-worth, self-confidence, self-fulfillment and well-being. In other words, the main aim of maieutic involvement in Mamelodi is psychological empowerment. The design will therefore attempt to create three different types of spaces which the author believes will achieve this aim. These are spaces for reflection and restoration; spaces where one feels as though they are connected to a larger system; and spaces where one can simply play, have fun, be inspired and forget all ones worries for a while.

3.1) Reflective spaces
Reflective spaces serve as small sanctuaries off the beaten path where people can go to collect their thoughts, relax, take in their surroundings, make plans and just be at peace. Friedberg (1996:95) is of the opinion that although light, wind, sun, sky, shadow, reflection, temperature, seasons and time are omnipresent, they are also common and familiar, and therefore go unnoticed. This is true, and it is only when one of these elements causes discomfort or unprecedented happiness that we actually notice it. The landscape can be designed in such a way that these elements are once again seen and appreciated, enabling them to bring pleasure to the viewer and in so doing, to restore, renew and inspire. It is these elements that create places in which reflection and peace are possible, and unfortunately, there are few such spaces of escape in Mamelodi even though they are necessary for the optimal functioning of everyday life.

3.2) Being connected to a larger system
These spaces where one goes to commune with oneself are equally as important as spaces where one feels part of the bigger picture. Communal gathering spaces are integral to the building of community spirit, and to the functioning of society as a whole. There are however two different types of ‘bonding’ spaces; those in which people can come together, and those where man and nature become one. These spaces allow a person to feel as though they are part of a larger natural system; spaces where man can commune with nature on a deeper, more spiritual level.

3.3) Inspiration and fun
The natural environment is also usually where one will find inspirational spaces that stimulate feelings of freedom and fun; spaces where one can play, fantasize and leave all other worries behind. This is known as the ‘play theory’, which Appleton (1975:170) defines as an aesthetic experience allowing a release and escape from the pressure of reality. It revolves around the assumption that “freedom can be found when personal activity is liberated from control by objective factors”.

“Play is an overlooked part of contemporary city life and one of the most neglected aspects of the public realm. Opportunities for spontaneous action, surprise and pleasure for all age groups ... make dense urban environments liveable and humane. Encouraging and prompting play makes public spaces safer and more cared for by encouraging lingering and interaction with the space rather than merely using the public realm as a corridor” (Cumberledge and Musgrave, 2007:207).
3.4) The experience of space
The above mentioned spaces all overlap in their functions, i.e. play spaces can accommodate a gathering of people; reflective spaces are often used as areas in which to commune with nature, etc. These spaces are not programmed and allow people the freedom to use them as they see fit. The main requirement is simply that anyone who uses these spaces, experiences them. According to Dewey (1934:246), experience is concerned with the interaction of an organism with its environment; an environment that is human as well as physical and that includes the materials of traditions and institutions as well as local surroundings. The organism also brings with it native and acquired forces that play a part in the interaction, thereby ensuring that everyone’s experience of a place is different.

In order for us to make sense of these experiences, however, we need to be provided with ‘in-between’ areas where reflection can take place and information can be assimilated. Cullen (1971:10) believes that what brings an experience alive is the drama of juxtaposition brought about by contrast and change: the locations at which here becomes there. He believes these transitional experiences to be crucial to our ability to sustain psychological engagement with our surroundings. Without them, he says that our surroundings will just slip past us featureless and inert.

In other words, there need to be patches of focused stimulation connected by linear threads that bind them together within the greater whole. How one experiences these patches is the key to the creation of successful places, and ultimately to psychological empowerment. According to Lynch (1972:1), a desirable experience is one which “celebrates and enlarges the present while making connections with past and future”. This is what a maieutic landscape is about – the creation of spaces which are used, experienced, appreciated and remembered.

Maieutic landscapes are very similar to works of environmental art, where the artist extrapolates the existing urban environment thereby sensitizing the viewer to it and demanding their involvement in it (Friedberg, 1970:99). This heightened experience can be achieved by making use of four specific techniques. These comprise the stimulation of the five senses, the emphasis and use of ephemeral, moving matter, the use of art and creative expression within the landscape, and the evocation of emotion. Combined, these interventions have the ability to stimulate sensory perception, encourage contemplation and maximise experience thereby changing the way we look at the world, and the way in which we see ourselves.

3.5) Ephemeral qualities
Halprin (in Howett, 1987:116) asserts that what is significant is not so much the understanding of what exists at any given moment in time, but that the existence is ephemeral and in constant motion. Transient experiences ensure that the viewer has more chance of noticing the element than if it was a static object he was seeing for the tenth time. As each viewer experiences and understands things differently, it matters not exactly what the experience means, but that it means something.

Figure 38 & 39:
The ephemeral nature of plants - vegetation that changes its patterns, textures, colours, size, smell, etc. (Acacia xanthophloeoa. Author, 2007) (The Ephemeral Garden, Paris, France. Hohenadel, 2008)
3.6) The use of art
Another technique that will stimulate different understandings and meanings is the use of art and creative expression in place-making. One of the advantages of art is that it does not require one to overcome language barriers or cultural differences before it can be ‘understood’; it has the ability to stimulate thoughts and ideas in anyone. Dewey (1934:270) says that “art is the most universal and freest form of communication”, that it “weds man and nature” and that it “renders men aware of their union with one another in origin and destiny”. According to Dissanayake (1992:34), “art can be considered as a behaviour (a ‘need’, fulfilment of which feels good) like play, something humans do because it helps them to survive”. She says that “this behavioural tendency is inherited, and thus both indelible and universal. That is to say, it is not the exclusive possession of just a select few; rather, like swimming or lovemaking, art is a behaviour potentially available to everyone because all humans have the predisposition to do it”.

Art is therefore good for people. According to Thompson (1996:69), art is defined as “the various branches of creative activity concerned with the production of imaginative designs, sounds or ideas”. In other words, art is any and all forms of creative expression. Music is a form of art with the power to move us transcendentally; by means of music a supra-individual state is created in which composer and listener can exist, together, joined in a common consciousness (Dissanayake, 1992:119). If a natural element, i.e. wind or water is the composer of a melody, then it follows that man, as the listener, and nature can become one. Seamon (in Walmsley, 1988:63) says that “individuals do not experience the world as an object, but rather are fused with the world through a web of feelings”. Art, in any form, therefore has the ability to evoke emotion which triggers specific feelings depending on the nature of the art and the mental state of the viewer. The depth of emotion determines the poignancy of the experience. “Emotion is understood as the tension or excitement level produced by the interaction of brain processes of perception, expectation, memory, etc.” (Dissanayake, 1992:176).
3.7) Sensory stimulation
Emotions are however, not only triggered by art, but can also be activated by sensory stimulation. According to Gallagher (1993:127) our relationship with the larger world is built from countless sensory interactions between us and our settings. How we experience the physical environment therefore depends upon the stimulation of the five senses, for instance, what you see, in addition to what you hear, smell, how it feels, and the memories and emotions evoked by these clues. The more senses the design stimulates, the greater the experience of the place will be.

3.8) Spatial arrangements
The sensory aspects of a landscape are connected to the spatial aspects; they have a direct influence upon one another. According to Gustafson (in Amidon, 2005:26), spatial arrangements are concerned with how you move, what your eyes rest on, what the depth of feel is, what you walk through, what you sit on... Spatial arrangements determine movement and flow through the landscape having a substantial effect on what Thayer (in Swaffield, 1994:104) terms the ‘Three dimensions of meaning’. Simply put, the distance from which an intervention is viewed and the sequence in which one views it will have a profound effect on the experience generated by the intervention. In particular, it will affect our sensory perceptions, as our sense of smell, attention to detail, auditory capabilities and the scale of the intervention will change as our nearness to it changes.

Another way of accentuating the environmental experience is to emphasize the hazard element – to provide excitement and the possibility of a challenge by allowing the viewer to experience familiar environments in unfamiliar ways. This can be made possible by providing different kinds of locomotion, or by viewing the landscape from unusual angles. Also, “by altering the speed at which we pass through the landscape, we may greatly alter the time-sequences which are an integral part of our perceptive experience” (Appleton, 1975:178).
3.9) Time

Time is therefore one of the most important elements affecting one's experience of a place, not only because of the speed at which we are moving, or the ephemeral nature of the environment, but also because the viewer's understanding increases, his/her mood changes, he/she has different emotional reactions at different times, and so on (Walmsley & Lewis, 1984:76). The purpose of the viewer also has an effect on his/her experience in that it determines how much time a person can give to looking, listening and experiencing.

3.10) Cognitive elements

Finally, one can make use of elements which are pleasing to the cognitive faculties, i.e. repetition, pattern, continuity, variation, contrast, balance and proportion (Dissanayake, 1992:54). Walker (in Francis & Hester, 1990:120-128) discusses three main ideas in this regard - gesture; hardening and flattening of the surface; and seriality. These three ideas can be linked to our earlier discussions on spatial arrangements and their impact on one’s experience of a place.

The first, "gesture" can be described as "a linear statement in the landscape that becomes an organising element for perceiving the whole". He uses Robert Smithson's "The Spiral Jetty" as an example of this, as it persuades the viewer to look at the landscape in a new way simply because of the geometry of the design and the way it is placed. Walker also discusses the merit of Christo's "Running Fence" as an example of gesture because of the way in which the shimmering fence interacts with the landscape influencing its ability to "make you perceive the landscape differently" (Francis & Hester, 1990:121). Other methods of creating gesture include framing of views, emphasizing perspective, creating grand vistas along sight lines, among others.
The second idea has to do with the hardening and flattening of surface. A simple example of this is the placing of a carpet on an undefined floor, thereby creating a defined space (Francis & Hester, 1990:124). Changes in level, even small ones will also have this effect. Intricate paving patterns are visually stronger than their surrounds and are therefore useful in the creation of ‘physically undefined’ space. These methods of almost abstract space creation serve to emphasize, and draw the eye; they create focal points that will be noticed by the viewer.

Seriality is a form of repetition which “when used with insistence begins to visually dominate the non-repetitive elements of its environment” (Francis & Hester, 1990:127). Such interventions draw your eye into the space; they demand attention and engage the mind. Even just a simple ‘why?’ can be enough to start a conversation or create an idea, both of which have the ability to change your way of thinking.

Combining spatial, sensory and emotional aspects can produce a rich and thought provoking experience. The landscape should therefore emphasize the importance of material elements and spatial configurations that can draw together the physical and mental worlds, stimulating the mind to wander, to contemplate and wonder, and to find satisfaction in the experience of nature (Thwaites, Helleur & Simkins, 2005:530).

The above tools, qualities and spaces encourage people to see things differently, to question, to be critical, thereby stimulating thoughts and ideas, conversations and community, a landscape of learning.

Sardello (1986:35) maintains that if learning were free to work in the world it would produce a ferment of conversation, writing, performance, speculation, investigation and the making of images in art, music, poetry and drama. Culture would flourish, bringing about a synthesis of imagination, identity and social cohesion. The University campus is thus an ideal space for such an intervention as it combines the educational, recreational and functional, thereby drawing the campus out into the communal zone and unifying the area; thus providing a place filled with ideas and the means with which to inspire ideas.
Part 4: Conclusion

Bunschoten, Hoshino & Binet (2001:23) explain that the landscape can be likened to a strange dynamic skin, echoing the crust of the earth, but with different mechanics, different rhythms and undulations. Love, life, weather and seasons ripple this skin. Nature and man work together in the creation and manipulation of this skin; we are all a part of it just as it is a part of us. The landscape is what ties us together, what links us to the earth. It is where we are truly at one with nature and with our fellow man.

We need to promote the social interaction and bonding of people, and a well-designed public space that is accessible to all is the ideal way of achieving this. Any settlement is a body, with mass, skin, motion and emotion. Just as a body is a complex network of systems within a system, a settlement functions in the same manner. When you transplant a heart, it needs to be sourced, matched and prepared in order to function optimally (Bunschoten et al, 2001:45). The same can be said for a settlement – any intervention within its fabric needs to be carefully planned, based on the human, and uniquely and creatively implemented. It needs to be connected to the body, its main source of life, for only then will it live, thrive, and positively influence the thoughts and emotions of its users.
Part 1: The Context

As discussed previously, Mamelodi is an urban landscape situated 20 kilometers east of the Tshwane City Centre. It is a dynamic, vibrant, multi-cultural community set at the foot of the majestic Magaliesberg Mountains. This physical barrier forms the northern and eastern borders of Mamelodi, while the Pretoria-Witbank highway creates the southern border.

A tributary of the Apies River, called the Moretele, divides Mamelodi into two distinct halves, and a significant portion of Mamelodi’s green open spaces can be found along its banks.

Tsamaya road - the main road cutting diagonally across Mamelodi, along which much of the township’s business and light industry can be found, lies along the old trade route to Sekhukhuneland. The railway line running along the southern edge of Mamelodi is a reminder of President Paul Kruger’s struggle to gain independence from Britain through access to the Maputo harbour 110 years ago (van der Waal, 2000:1).

Mamelodi has a rich history of cultural diversity, complex social and economic relations, as well as its spirited political dynamics, mainly brought about by historical policies.
Mamelodi was originally a large farm called Vlakfontein, and its name was officially changed in 1962 to Mamelodi which means “Mother of Melodies”. It is widely believed that this name originated from President Paul Kruger who was known to the Bantu by his name ‘father of whistling’ or ‘man who can imitate bird’. Mamelodi lives up to this name, as it saw the formation of an original and unique jazz style called Molombo Jazz (Mamelodi Tourism Brochure, [S.a.]).

The Pretoria City Council bought Vlakfontein farm in 1945 to provide accommodation for the city's labourers. In 1950, the apartheid policy and Group Areas Act saw people being forcibly removed from their houses and relocated to Mamelodi, where in 1953 the first official housing units were built, and it was formally proclaimed a ‘township’. Development began west of the Moretele River but was halted in 1968 in line with the apartheid regime, due to the fact that there were too many people moving into the area. Development only began again in the late 1980’s and spread over the river into the east (van der Waal, 2000).

The Vista University Campus, as it was previously known, was built in 1980 and served as an intellectual centre during the move towards a democratic government (van der Waal, 2000). It was officially incorporated into the University of Pretoria on 2 January 2004 (University of Pretoria, 2008).
Part 2: Climate, soil and vegetation

Biome: Rocky Highveld Grassland
This is a transitional type of biome lying between the typical grasslands of the high inland plateau, and the bushveld of the lower inland plateau. It is found mainly between 1500 – 1600m in altitude, also known as Bankenveld, which is a fire maintained grassland (Low & Rebello, 1996:39).

Soil type:
Mamelodi is situated mainly on the sedimentary shale deposit on the Magaliesberg Group, Pretoria Series of the Transvaal System. The soil comprises mainly of weathered shale which tends to become clayey under wet conditions (Le Roux, Louw & Nel, 1980:5).

Summers are long, hot and dry, and even though there are frequent thunderstorms, water is still considered a precious resource. Winters are short and mild with little to no rain, and frost is therefore rarely a problem. The clayey soil found in this area ensures that not too much water will be ‘lost’ to infiltration, and the vegetation commonly occurring here has a low - moderate water consumption.
Part 3: The Site

- **Environmental**
  - storm water channels - unrealised opportunity for irrigation and recreation
  - large tracts of open land with the potential to become spaces of value
  - no botanical / medicinal or food gardens

- **Cultural**
  - inappropriate identity and a lack of sense of place
  - no art / sculpture
  - a lack of organised events, few students and therefore a lack of liveliness and fun
  - people have many different cultures, beliefs, languages, and so on, that provoke spontaneous, diverse activities and learning opportunities

- **Physical**
  - storm water channel - opportunity to become a playground / landmark / feature
  - very flat site
  - lack of landmark / focal points / identifying features
  - insufficient seating elements

- **Psychological**
  - campus lacks unique character
  - nothing to foster identity or sense of community
  - able to begin with a clean slate

- **Social**
  - no gathering spaces where many people can come together
  - lack of organised events
  - no focal elements
  - lack of variety and excitement - one small, empty cafeteria for example
  - people are vibrant, diverse and socially inclined

- **Educational**
  - lack of students
  - library is sadly lacking and does not come close to reaching its true potential as a community facility, for example
  - no visible communication of arts or culture
  - inaccessible institution that is inapplicable in its context
  - has the potential to become a life-changing institution that can make a difference in the lives of many

- **Recreational**
  - no organised entertainment or events
  - lack of outdoor gathering spaces
  - lack of sport facilities
  - students are always ready to have a bit of fun

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Figure 76: Diagram analysing the opportunities and constraints of the UP Mamelodi campus (Author, 2008)
Northern edge of University - People living directly adjacent to boundary fence throw rubbish over onto University property.

Eastern edge of University - Open land on both sides of Hans Strydom Road - very busy road, some retail happening along the edge - retain and enhance this. University turns its back on the road and closes itself off - solution? Concrete-lined storm water channel running the length of the campus.

Western edge of University - High school across the road - create a link? Large open un-surveyed stretch of land, with a natural storm water channel running along its edge.

Figure 77: Informal vendors located at the entrance to the University and along Hans Strydom Road (Author, 2008)

Figure 78: Gladys - lives opposite the University entrance and rents rooms out to students (Author, 2008)

Figure 79: On weekdays, throngs of school children move along the University’s southern edge (Author, 2008)

Southern edge of University - Entrance to the campus, busy mornings. Major pedestrian route for children on their way to & from school. Formal residential edge - many people, passive surveillance, etc.

Figure 80: Aerial photo of UP Mamelodi campus (University of Pretoria, 2008)
Existing fences, entrances and circulation

Figure 81:
Intimidating double wire + palisade fence surrounding the campus (Author, 2008)

Figure 82:
The palisade fence and open buffer zone are not a welcoming site (Author, 2008)

Figure 83a:
The entrance to the campus is walled off and secured by a guarded boom gate. There are no seating / waiting areas and trees are non-existent (Author, 2008)

Figure 83b:
View of the University from Hans Strydom Road
All but the roofs are obscured by the palisade fence (Author, 2008)
Existing hydrology

Figure 84: Hydrology in context (Author, 2008)

Figure 85: Site drainage (Author, 2008)

Figure 86: Storm water runs in a vegetation-lined permeable channel on the eastern side (Author, 2008)

Figure 87: Channelised water on site (Author, 2008)

Figure 88: Storm water runs in a concrete-lined channel on the western side of the campus (Author, 2008)
Various faculty buildings, not being used optimally (offices are empty, courses have been discontinued, and so on - 6 - 9m high

Lecture halls, presently in use - single storey

Landmark entrance building - 15m at its highest point

Arena - used by University for sport and large gatherings, as well as the caffeteria. Used by the community for special functions like weddings, etc - 12m high

Figure 90: Southern elevation of the UP Mamelodi campus (Author, 2008)

Figure 89: Northern elevation of the UP Mamelodi campus (Author, 2008)
Existing library within restrictive laager formation - squarely visually impermeable structure dominating the existing rigid, geometric arrangement. Inaccessible to the public.

Figure 99: Diagrammatic drawing of the campus (Author, 2008)

Double volume
Study area
Secure book area

Figure 100: Interior view of the library building (Author, 2008)

Figure 101: The library building is almost completely visually impermeable (Author, 2008)

Figure 102: Vertically exaggerated, diagrammatic plan & section of library building (Author, 2008)

Figure 103: Situated in the centre of a ring of buildings, the library is visually dominant (Author, 2008)
Having analysed the site and having identified both the challenges that need to be addressed, and the opportunities that will inform the future design proposal, as well as the theoretical premise on which to base this proposal, we can now move on to the design specifics.

The design brief, as well as the successes and failures of pertinent precedents, serve to create a reliable point of departure from which to proceed.

Part 4: Brief

Mission:

- Maximise opportunities for all people
- Teach, empower and stimulate creative thought
- Build community spirit
- Provide spaces in which feelings of pride and local identity are fostered
- Encourage mutually beneficial relationships between people and their natural environment
- Promote sustainable development

The U.P. Mamelodi Campus offers the ideal place in which to explore and address these goals...

"If you are thinking a year ahead, sow seed. If you are thinking ten years ahead, plant trees. If you are thinking one hundred years ahead, educate the people"

"Chinese Proverb (Thompson & Sorvig, 2000:287)."
Part 5: Precedents

**Ivory Park Food Gardens, Johannesburg**

The Ivory Park urban eco-village is run by a host of co-operatives, with members growing and selling vegetables, fixing and selling bicycles, recycling waste, running eco-tours and sewing clothes. A construction co-operative made up of local community members is in the process of building the village's first homes. Project founder, Annie Sugrue defines the eco-village as a place "where people work, play, grow their own food and generate their own energy". She also explains however, that the village does not function as an "island", but strives to work in partnership with the broader Ivory Park community (Russouw, 2004). This is a prime example of what the University should become - a facilitator that encourages and oversees the running of small businesses by local community members; a facility that provides education at a grass roots level.
Dorothy Nyembe Park

- Bold, sculptural, robust place making elements
- Vast, open and relatively unused
- No evidence of community involvement
- Sand soccer field with footpath straight through it
- Water used as element running throughout park – areas of neglect & lack of maintenance
- 3-4 children’s play spaces – pre-made standard elements
- Standard element tying park together – concrete sculptures and benches

Figure 108: Bold, sculptural focal elements (Author, 2008)
Figure 109: Soccer field used as a walk-through (Author, 2008)
Figure 110: Water course - littered and eroded (Author, 2008)
Figure 111: Amphitheatre (Author, 2008)
Figure 112: Neglect and degradation (Author, 2008)
Figure 113: Standardised play elements (Author, 2008)
- Sculptural qualities not as immediately striking
- Smaller spaces, more enclosed and better utilised
- Community art and involvement evident – creating pride and local identity
- Grass soccer field in use
- Water used as element running through park – better maintained
- Children’s play areas not as standard and unimaginative
- Standard element tying park together – balustrades, bridges and fences
Part 1: Conceptual Framework

Vision:
- The University as a catalyst, a facilitator of change
- The University engaging with the community
- Interventions that educate and empower people as far as possible
- A permeable society focusing on community interaction
- Place-making, linkages and connections
- Redefinition of the education system in Mamelodi

Aims:
- Economic empowerment
- Social cohesion
- Environmental and ecological repair
- Shifts in perception
- Identity and pride

Chapter 5: Design Development

Figure 121:
The infectious impact of a catalyst (Author, 2020)

Figure 121 & 122:
Conceptual exploration of possible interventions on the UP Mamelodi campus (Author, 2020)
The framework expanded & explained

The spread of knowledge (Author, 2008)

The Edible University addresses several key contemporary social policy agendas in an innovative way. Issues around community cohesion and multiculturalism, public health, education reform and environmental responsibility are all addressed through a visionary yet pragmatic gardening and teaching programme. Through creating a richer, more experiential and less overly skills-oriented approach to education, it has demonstrated that environmental and social responsibility can be taught to children and have a tangible impact on the community as a whole. (Cunliffe & Magrawe, 2007:76)

Figure 126: Green, growth, growing (Author, 2008)

This greening initiative- spread out and into Manelodi bringing about pride and psychological empowerment

The channel system exists in Manelodi has the potential to be enlarged, upgraded, designed and used as a community food park and nursery, especially if grey water starts being pumped in. This channel system forms a green corridor running throughout the township, creating an ecological green lung which could have a larger impact and added benefits with a bit of work.

An NGO on the University campus will be responsible for this greening initiative, i.e. the University becomes a facilitator. This initiative will start at the university and grow up the storm water channel system. The first step therefore is to create a nursery as well as the food gardens on the campus. This nursery will serve as the vehicle for future expansion providing plants for growth in the channel. More nurseries can be set up as they grow, always start small. The University will provide training for all those interested, students can come and help, and in so doing, learn too (experiential learning). Some of the plants can be sold, as well as the food. In this way, the project contributes to skills, education, employment, food, income and a green Manelodi.

An NGO on the University campus will be responsible for this greening initiative, i.e. the University becomes a facilitator. This initiative will start at the university and grow up the storm water channel system. The first step therefore is to create a nursery as well as the food gardens on the campus. This nursery will serve as the vehicle for future expansion providing plants for growth in the channel. More nurseries can be set up as they grow, always start small. The University will provide training for all those interested, students can come and help, and in so doing, learn too (experiential learning). Some of the plants can be sold, as well as the food. In this way, the project contributes to skills, education, employment, food, income and a green Manelodi.

Utilise existing storm water channels and proposed retention dams to harvest and clean storm and grey water. This initiative should begin at the university as an educational example for all.

This system spreads out and across Manelodi providing for and empowering the community, and encouraging mixed-use parks along the channel system including markets, food gardens, and recreational areas. (see Figure 128 on page 50)

Implementation of tree-lined swales in the informal sector, to channel storm water into dams for food garden irrigation and supplementation of storm water system.

Storm water system

Enabling education, empowerment, connectivity and identity

Figure 127: University as a catalyst (Author, 2009)
“Cities were invented to facilitate the exchange of information, friendship, material goods, culture, knowledge, insight, skills, and also the exchange of emotional, psychological and spiritual support.” We must maximise these exchanges, whilst minimising the travel necessary to accomplish them.

Part 2: Masterplan Design Concepts and Process

Figure 128: Masterplan attempt #1 - storm water channels, food gardens, keep all existing buildings, SW - NE axis (Author, 2008)

Figure 129: Masterplan attempt #2 - erosion, water channels, water main retention dam at lowest point of site (Author, 2008)

Figure 130: Masterplan attempt #3 - storm water channels, food gardens, community engagement (Author, 2008)

Figure 131: Masterplan attempt #4 - move food of University to Long Strathmore Road and create portals leading people into the campus (Author, 2008)

Final and completed masterplan - combination of previous five attempts
Figure 13.5: Conceptual Ideas
Some initial thoughts and ideas that guided the design progression of the masterplan.

Connect

Unify

Serpentine stream & paths

A tree is not just a tree...

Look twice, think deeper, discover...

Sculpture structures

Inspiration

Ideas

Walk the path...

Dance to the music of the wind

Break free!

Conceptually speaking

Medicinal gardens

Multifunctional zones

The Island

Smelly, feely herbs

Channel = opportunity

Cusky, lived work of activity
Chapter 5: Design Development

Four phases of implementation

(Author, 2000)

Figure 136: Existing
Unrealised potential and wasted space

Figure 137: Phase 1
1. Shrink secure University area, move tenors and relocate the face of the University to Hans Strydom Road
2. Community engagement development on Hans Strydom Road
3. Main dom and aquaduct + relevant channels
4. Medicinal gardens and community food gardens
5. Comfortable air classrooms

Figure 138: Phase 2
1. Extension of library & square
2. Interior section around library
3. Scoor field, theme gardens & soundscape
4. Housing development in north-east corner
5. Living lab + wetlands
6. Experimenting housing

Design Principles:
1. Building height no more than 12m (4 storeys)
2. Coverupt: 70%
3. Complete relocation of the building line
4. Zoning - mixed-use policy
5. Utilise grey water and stormwater as far as possible on site for irrigation, regeneration of ground water, reoccupation and advection
6. Length of block 20-60m to allow permeability with roads every 100m
7. Pedestrian pathways, cyclist paths and street trees (indigenous) - street furniture along roads
8. Pedestrian crossings and an island in the middle of Hans Strydom
9. Encourage informal leading and stalls
10. Promote passive surveillance
11. Encourage community engagement and involvement
12. Create public spaces to be used by the community
13. University lives cut into the community
14. Densification of people and commercial activities
15. Waste recycling (separated, separate and use up or as near to site as possible)
16. Make use of sustainable and renewable energy sources

Figure 139: Phase 3
1. Extension and enlargement of the campus according to the group urban framework, based on the design principles laid out
Final Masterplan

Figure 140: Completed Masterplan (Author, 2008) - more detailed information to follow

Figure 141: Vehicular circulation (Author, 2008)

Figure 142: Pedestrian circulation (Author, 2008)

Figure 143: Vehicular Circulation

Figure 144: Pedestrian Circulation

Chapter 5: Design Development

Circulation on campus is pedestrian only, with provision made for a multi-storey car park at the edge of the campus where it is easily accessible during soccer matches, functions in the area, etc.

University Entrance Point

Primary Circulation Route

Secondary Circulation Route

Cityscape education g. 

architect & function

garden

doctor

relaxation area

cafeteria

entry/exit

academic & community library

residential

hosp building

university entrance & community engagement

fungal gardens & housing development

living laboratory & experimental housing

open air classrooms & meeting areas

medical gardens

health clinic

sec field / water treatment

southern community

tropical educational gardens

arena & function

garden

parking

relaxation area

cafeteria

entry/exit

academic & community library

residential

hosp building

university entrance & community engagement

fungal gardens & housing development

living laboratory & experimental housing

open air classrooms & meeting areas

medical gardens

health clinic

sec field / water treatment

southern community

tropical educational gardens

arena & function

garden

parking

relaxation area

cafeteria

entry/exit

academic & community library
Water runs into a main channel, and is subsequently allowed to fill smaller channels running perpendicular to the main one. This is echoed through the opening of a mini sluice gate. These smaller channels are completely permeable and allow the water to infiltrate, thereby "irrigating" the food gardens planted on either side of them.

The separation of a pond into multiple cells will enhance pollutant removal and lessen maintenance tasks.

Food gardens provide people with food something to be proud of and a place to interact with others.

Challenge:
Storm water is channeled off the site without utilizing its potential as an aesthetic and recreational opportunity. It is also a useful resource that is not being tapped.

Opportunity:
Use existing storm water channels both as a means of physical empowerment (food gardens, etc.) and psychological empowerment - improve aesthetics, preserve identity of place and encourage pride and ownership.

Figure 145. Mini sluice gate (Author, 2008)

Figure 146. Max feeding channels with smaller irrigation channels (Author, 2008)

Figure 147. Multi-select amelioration dam (Author, 2008)

Figure 148. Water seeps into soil from irrigation channel (Mac 15 30)

Figure 149. Food gardens provide people with food something to be proud of and a place to interact with others (Author, 2009)

Figure 150. Advantages of stream water (Author, 2008)

Figure 151. Aqueduct supplies water to food garden areas as well as becoming a landscaping element (Author, 2008)

Figure 152. Gravel-lined detention dam with three Four o'clock trees planted in the dam area, except water flows into food garden irrigation channels

belling sectional gardens

scooter field / water amelioration

cast in-situ concrete aqueduct

gray water amelioration

gross-inos natural channel

芩水

FINAL

Surface Flow

Aqueduct

Chapter 5: Design Development

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Figure 154: Diagrammatic representation of the water flowing annually through the storm water system proposed in the framework (Author, 2005); see Appendix 4 for calculations.

Figure 155: The functioning of a playpump (Playpumps International, 2003).

Figure 156: From surface to aqueduct (Author, 2005).

Figure 157 & 158: Both water collection tank and aqueduct can be used as local elements that provide a place with a specific character and identity. They have the potential to become landmarks within Mamelodi, and a source of community pride (Author, 2005) (Masiga & Courtendridge, 2007: 14).

Chapter 5: Design Development

landmark
identity of place
unifying element
multi-functional

Figure 159: The aqueduct is a unifying element which can support different functions (Author, 2005).
medicinal gardens A
Utilise the aqueduct structure to create vertical gardens and tranquil spaces of medicinal value, both physically and psychologically.

health clinic B
The University has set aside this building as a future health clinic, in line with community engagement principles.

soundscape C
A soundscape is a sounds or combination of sounds that arise from an immersive environment. It consists of natural sounds, like animal vocalizations and the sounds of weather, and environmental sounds created by humans through musical composition, sound design, or as byproduct of ordinary human activities, including conversation, work, and play (Wikipedia, [S.a.]).

The soundscape will consist of, among other things, Aeolian harps with a twist... Called "Plastorgans," these recycled, innovative musical instruments double as community art works, stimulating feelings of price and ownership. Old bottles with slits cut into them are decorated by local community members, and due to their low-cost can be changed and redecorated as often as possible, rendering them the perfect ephemeral sculpture garden.

education trail F
Comprises 4 "urban rooms," each representing a different type of vegetation - a forest, a succulent rockery, a wetland and a grassland. These rooms provide areas in which to sit and relax, as well as educational, experiential "classrooms."

soccer field D
Soccer for Hope is an NGO that uses soccer as a means of education and communication with the youth about drug and alcohol abuse and HIV/AIDS.

function garden E
Aesthetically pleasing flower garden where members of the community can picnic, take wedding photos, go to relax, and so forth.

Meeting and relaxing in the succulent rockery. Photo's in the garden (Author, 2009)
shading structures and woven fences

Involve the community in the creation of shading structures over and around the existing carparks. This creates both a sculptural place that community members can identity with and take pride in, as well as a space which is robust and multifunctional and can be used for hall workshops, or as outdoor classrooms, market spaces, etc.

Community members will also be involved in the weaving of fence murals thereby ensuring that the transition zone between the University and the surrounding residential areas is welcoming and becomes a part of the local community.

living laboratory

The University leases out a portion of its land for 50 years to a housing company like SHIFT. In conjunction with the University, the land becomes a living research laboratory for experimental housing. The Chemical Engineering, water utilisation unit, as part of the community engagement initiative, does short practical courses on cleaning gray water, etc. Students and community members are therefore encouraged to get involved and obtain both information and skills, as well as a sense of self-fulfilment and accomplishment.

multifunctional fences

Fences are conceived as a necessary security element in South Africa – this however, does not mean that they must be mono-functional and boring. Multi-functional fences ensure that the security element remains, but that boundaries are not as formal or rigid, and that fences can be used from both sides. Thirsty encouraging interaction between people within and without. They give a “come closer” invitation rather than a “go away” message.

Chapter 5: Design Development

Create an opportunity for the final urban framework to occur – implement open air classrooms and workshops in a temporal setting in order to bring people onto the campus. This enables it to become functional in a way that is meaningful and of value to the community.

The existing carparks provide an ideal setting for such an intervention: Teach art and music classes, small business and book keeping skills, craft workshops, community building workshops, nutrition and planting information sessions, skills awareness workshops, basic literacy skills, etc. These spaces can also function as meeting and gathering spaces.
cafeteria area

Consisting of a variety of vendors and stalls. Located adjacent to the study and meeting areas, and just off a main circulation path.

Amphitheatre-type space

Stepped grassy seating space with an informal stage area and projection screen. Links the interior section of the University with the community park and soccer field.

under and around the library

Hardscaped area for easy maintenance and circulation. Raised, open-air study space under library building. Mediation between built forms and natural forms - trees protrude through holes in the concrete slab 'softening' the raised concrete walkway and creating a feature.

chill space

Open grassy area with plenty of large shade trees and concrete seating elements. Adjacent to the lecture halls, it is located in the perfect position to relax after class, meet with friends, eat a quick lunch, and so on.
Chapter 5: Design Development

Solution:
The proposed community library tries to mediate between the demolition of the existing library and keeping it as it is now. The new library is created by linking the existing building with one of the existing lecture halls. The structural supports of the existing library will be kept while the ground floor walls will be broken out to increase permeability (1), thereby creating an open-air study hall. This will be shifted one floor up and a second floor will be built on top (2). The first floor will connect to the old lecture hall (3), which will be remodelled into the community library (4). These interventions succeed in breaking the rigid geometry, linking the community and the university, and creating a visually permeable, open and inviting library which is accessible from the outside.

Challenge:
Existing library:
- rigid and restrictive
- visually impermeable
- inaccessible to the public.

Figures 191, 192, 193
Model showing the existing layout and library building (Author, 2008)

Figures 192, 194
Attempt at emphasising the circular element (Author, 2008)

Figures 195, 196, 197
Attempt at integrating the different grid systems (Author, 2008)

Figures 198, 199
Connecting the two corners of the site and making the library accessible from the outside (Author, 2008)

Figures 200, 201
Diagrammatic plan and section of proposed library building (Author, 2008)
As stated previously, there are three different types of spaces that will encourage empowerment. These spaces become places where people can escape from everyday life, where they are encouraged to dream. These are:

Reflective spaces where one can be calm, collect one’s thoughts and be at one with oneself. In places like Mamelodi, many people live very overcrowded, hectic, hard lives that leave little or no space for peace and reflection. Time is a precious commodity, so these reflective spaces need to be easily accessible and well known.

Spaces where people feel connected to others in similar situations, where they feel like they are part of a larger community, as well as part of the larger natural system. This is important in a place like Mamelodi where people face hardships on a daily basis, and need to feel that they are not alone.

Fun, stimulating, inspirational spaces where one can relax, play, be free and leave all worries behind. A place where the imagination comes alive...

Some of the ‘tools’ that can be used to create these spaces are:

- Elements with an ephemeral nature
- Art (especially that which involves the community)
- Sensory stimulation
- Specific spatial arrangements
- Gesture, hardening and flattening of surface and density

The following design will attempt to empower the residents of Mamelodi by creating the spaces mentioned above on a more detailed level.

Part 1: Introduction

Why detail this section - opportunities, advantages, needs and constraints?

All circulation patterns in and around the University start or terminate in this square. It therefore becomes an important node within the University precinct.

It is public, and therefore cannot be closed at night and become dead space.

The public library acts as the intermediary link between the University and the public. It will be used by young and old alike - it is the perfect interface.

The space is located in the middle of three significant zones, namely, institutional, busy retail and everyday life (food gardens, residences, apprenticeships, and so forth.) it needs to interact with all of these facets and therefore provides an exciting challenge.

The square can become an exhibition space for the types of skills being taught in the apprenticeship workshops adjacent to it.
Chapter 6: Detail Design

Final Design

Part 2: Plan development and process

Figure 205: Attempt to reconcile grid systems present on site (Author, 2008)

Figure 206: Incorporation of food gardens and apprenticeship workshops (Author, 2008)

Figure 207: Incorporation of water, aqueduct and raised spaces (Author, 2008)

Figure 208: Model showing progression of green, water and raised areas (Author, 2008)

Figure 209: All was there - central section around fgs still too rigid and static (Author, 2008)

Figure 210: Final plan for library square (Author, 2008)
Part 3: Design Principles

There are eight design principles that, in the author’s opinion, must be adhered to in order to successfully create the previously mentioned spaces, and thereby, empower the people of Mamburao. These principles are:

1. The creation of multi-functional, simple, robust elements and spaces.

2. Community involvement and participation. This will be achieved with the large female sculptures, concrete walkway narratives, the mural on the basketball wall, locally made shading structures, mosaic work, and so on.

3. Greenery and natural elements increase towards the food gardens, and decrease towards the busier, more dense areas, i.e. Hans Strydom Road. The movement of water over the site also achieves this. It begins in a very rigid, hard container and subsequently moves into a pobble-lined, organic planted swale...

4. Make use of ephemeral elements, like vegetation, wind mobiles, musical sculptures, rust patterns on paving, and so on.

5. The use of vertical elements to define main circulation routes. This is accomplished through the positioning of aqueduct supports and tall trees.


7. Figure 214: Changes in levels – space creation (Author, 2008)

8. Multifunctional spaces - Partterre-type elements: Manipulation of the landscape to create level changes in an attempt to reconcile the different grids and geometries on the site, as well as to break the monotony of flat site. This brings elements closer to eye level thereby allowing people a different experience of that element and inviting them in to touch it, sit under it, and so on.

Figure 215: Plaza do Dal, Spain (Mangado, 1996)

Figure 216:
The stimulation of the senses through the use of tactile and textured materials, aromatic vegetation, shadow play, musical sculpture, and so on.

Figure 217: Sensory stimulation - Vodacom advert (Wallpaper Magazine, 2006)

Figure 218: Sensory walkway at different levels (Author, 2008)

Figure 219: Examples of tactile, visual and aromatic elements found in planters along sensory walkway (Author, 2008)

Figure 220: Colour scheme (Author, 2008)

Figure 221: Platforms for play (Cople, 1994-95)

Figure 222: Build forts, create secret spaces, stimulate the imagination (Coppard, 2003)

Figure 223: Looking out from the library (Author, 2008)

Create play areas, especially for children, places where the imagination can run wild...

"Playgrounds that dory the child; that offer no chance of involvement, participation or manipulation; that are devoid of choice, complexity and interaction will be empty of children" (Friedberg, 1970:29)

What we need are places of imaginative play and learning. We need to broaden the definition of a playground. They should be places where children can make up their own games and create new patterns of play.

"Children thrive in play situations where they can be architects and builders and are given materials (rocks, logs, pipes, sand, water to do so. Children feed a steady diet of static equipment for muscle exercise don't get to exercise their imaginations and creative powers" (Blok, Bowes, Water and Leaves by Danneelmaier, 2006:81).

Columns create a colourful focal point, as well as providing the structure upon which to build forts and construct magical lands.
<table>
<thead>
<tr>
<th>Tree Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ficus sycomorus</em> subsp. sycomorus (Sycomore fig)</td>
<td>Large fical tree with planks roots upon which to sit and play</td>
</tr>
<tr>
<td><em>Celtis africana</em> (White stinkwood) / <em>Combretum apiculatum</em> subsp. apiculatum (Red bush-willow)</td>
<td>Streets trees with non-aggressive root systems. Do not produce large messy fruits.</td>
</tr>
<tr>
<td><em>Bauhinia spectabilis</em> (Tree victoria) / <em>Dombeya rotundifolia</em> (Wild pear) / <em>Erythrina lysistemon</em> (Common coral tree) / <em>Schotia brachypetala</em> (Weeping boer-bean)</td>
<td>Plant along the sensory pathway - flowers and pronounced seasonal change.</td>
</tr>
<tr>
<td><em>Aosia sieberiana</em> var. woodii (Paper-barked thorn)</td>
<td>Focal tree - flat top and peeling, papery bark.</td>
</tr>
<tr>
<td><em>Harpephyllum caffrum</em> (Wattle plum)</td>
<td>Shade tree - reddish, spiny-type leaves</td>
</tr>
<tr>
<td><em>Combretum erythrophyllum</em> (River bush-willow) / <em>Aosia xanthophloea</em> (Finger tree) / <em>Syzygium cordatum</em> (Winter-berry)</td>
<td>Trees to be planted in and around water points - like wet feet. Appropriate colours.</td>
</tr>
<tr>
<td><em>Heterocops rotansis</em> (Lavender tree)</td>
<td>Attractive bark and red &amp; purple autumn colours</td>
</tr>
<tr>
<td><em>Catha edulis</em> (Bushman's tea)</td>
<td>Slender, upright canopy, non-aggressive root system</td>
</tr>
</tbody>
</table>

**Chapter 6: Detail Design**

Figure 7.34: Examples of trees to be used (Author, 2007) (Vanier, 2005)
1. Interaction between water and a hard, dead surface

2. Release / Freedom

3. Interaction between water and natural vegetation

4. Fuzzy retention dam

Water in aqueduct - rigid, static, contained and untouchable

Water in surface dams - organic, natural, grows, texture and able to be interacted with
Figure 226: Sections through paving edges (Author, 2009)

Downlighters illuminate the entrance to the University.

Downlighters enhance the visual aspects of the water flow.

Uplighters highlight the beauty of the fountain's pronounced form.
Galvanised mild steel lock bolt with washer to prevent the bolt from slipping into oversized hole which allows for expansion

160 casel in-situ exposed aggregate concrete slab

150 crusher run paving base

Sub-base from 150 scoria fill, stabilised and compacted in-situ material

50.80 diameter galvanised mild steel round hollow section, 3 thick forming sandrail

31.80 diameter galvanised mild steel round hollow section forming balustrade

30 thick cast in-situ concrete screen containing mesh to prevent cracking

120 thick precast echo slab with hole drilled into it to provide space for bolt

120 x 150 galvanised mild steel bearing plate with graphite greased between it and the angle to allow for expansion

Galvanised mild steel threaded joist cast into substructure

Cast in-situ concrete foundation wall

Galvanised mild steel cross brace

150 x 150 x 10 equal leg mild steel angle

Focal uplighting of the female sculptures

Restaurant - night time activity

Figure 227: Longitudinal section through pedestrian bridge (Author, 2006)

Figure 228: Cross section through pedestrian bridge (Author, 2006)
Trees which like wet feet. This is because the bentonite liner forms a surface upon which condensation will occur keeping the area around the roots continuously moist and warm.

Indigenous wild plants, e.g. Typha capensis and Cyperus textilis

200 layer of gravel which breaks any capillary action and prevents against erosion as well as providing an aesthetic visual barrier

Maximum water level

Non-woven, needle-punched geotextile

100 thick bottom limestone liner

Non-woven, needle-punched geotextile

Subgrade prepared and compacted to engineer's specifications

Figure 3.29: Blown up: detail section through bentonite lined dam (Fuller, 2006)
community participation

- Learn new skills and teach one another things, thus empowering oneself and others, and creating a sense of ownership at the same time.
- Reawakens a spirit of community and encourages bonds between different people, between people and their environment, and between people and themselves.
- Liberates feelings of self-worth, self-fulfillment and pride, in both the place, and in the people themselves and their achievements.

Principles of community participation strive to build a community that holds the capacity to initiate its own changes, and to continue developing and transforming itself.
Community participation and interaction with the landscape through elements that can be altered and built by the community, thus creating not only a space but also a place.

Figure 232: Section through walkway narrative (Author, 2008)

Figure 233: Narrative strip in concrete leads one towards the library (Author, 2008)

Figure 234: Wind mobile - ephemeral shadows (Author, 2008)

Figure 235 & 236: Surface decoration skills (Author, 2008)

Figure 237: Tyre swing, made from recycled tyres by members of the community - skill development

Swings, wind mobiles and shading structures are supported by the aqueduct

Hand landscaped area used for basketball / netball / informal games or as an area in which to pack out chairs. Robust, multi-functional space

Fashion ramp / stage / seating area

Raised planters containing tactile and sensory elements - seating edges
Generating music through play...

As the wind moves through the strings it causes them to vibrate producing an enchanting, ethereal, atmospheric haunting sound. All strings are tuned to the same pitch but have different tensions, lengths, densities and diameters. The wind will therefore play one harmonic on one string and a different harmonic on another depending on the intensity of the wind. This produces an unpredictable, volatile composition of sound that changes with every gust of wind.
Shading structures comprise squares of woven material (recycled plastic bags, necked PVC vinyl, woven rope, a patchwork quilt of old clothes, and so on), made by community members. They provide local identity and encourage pride and ownership. A changeable community artwork that builds local spirit and teaches new skills.
Stimulate senses, interactive elements & community participation such as changing female outfits and mobile shadow play elements... Both encouraging a relationship with the space through community involvement.

PVC Vinyl (inside billboard material) is stitched onto the mild steel frame using nylon rope. This part of the decorative element on the dress. The Vinyl has holes cut into it which are then protected by steel eyelets. This allows wind movement through the sculpture, as well as forming part of the aesthetics. The Vinyl dress is also bolted onto the steel frame at intervals.

Figure 236: Plastic bag dress
(mynewchicago.com, 2007)

Figure 237: Metal figure - Coleman
(Author, 2007)

Figure 238: Steel frame figure - O'Farrell - Cinello
(Author, 2007)

Figure 239 & 240: Rome, InStyle Magazine, FashionsWeek.com (l.a.)

Basketball courts are lit by a spotlight located next to the library building.

Light can be attached to cable system to provide focal light for stage performances

Pathway lighting on all main circulation routes

<table>
<thead>
<tr>
<th>Mild steel frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC Vinyl punched with steel eyelets, fixed with nylon rope</td>
</tr>
<tr>
<td>100 x 100 x 6 Steel angle fixed to concrete slab with M10 bolts</td>
</tr>
<tr>
<td>200mm cast in situ concrete slab</td>
</tr>
</tbody>
</table>

| Steel Eyelet |
| PVC Vinyl |
| Mild steel frame |
| M10 Bolt with dome nut |
| Mild steel washer |

Figure 243 & 244: Sectional exploration into constructing and fixing the sculptures (Author, 2008)
Focal Lighting

Figure 241: Sculpures visible at night (Author, 2009)

Figure 242: Illuminated seating (Author, 2009)

Figure 243: Luminaire security (Author, 2009)

Focal lighting of female sculptures
Spotlight above shading structure throws shadows at night
Downlighter on the underside of the aqueduct casts shadows on the ground at night
female sculptures, aquaduct, fig trees, landmark creation, identity creation, space as place

The spaces created by the three Ficus sycomorus trees, specifically chosen for their plant root systems, can be used for relaxation and reflection as well as a playground. Concrete blocks are placed in the detention dams and are displaced by the tree roots as they grow and move. This is symbol of the delicate balance between nature and man-made elements. The constantly shifting patterns are not rigid and ordered, but change as nature wills them to.
35 MPa concrete with waterproofing admixture, finished in middle sky blue exterior paint. Interior painted with 3 coats of ABE Super Lakold.

Figure 247: Aqueduct particulars (Author, 2008)

Figure 248: Multi-functional fig (Author, 2008)

Aqueduct terminates in hard square, water flows from three different chutes into a gravel-lined swale on ground level.

Figure 249: Conceptual model of space around trees (Author, 2008)

View over square from uncovered second floor of library - extends all the way into the university.

Main student entrance into university

Library building

Swale broaden into a gravel-lined detention area containing three Ficus sycomorus trees.

Gravel-lined swale
Chapter 6: Detail Design

Figure 260: Family of furniture to be used where suited (Author, 2008)

Cast in-situ concrete aqueduct creates a landmark and frames the square

Figure 261: Sections through fixing details of bench - concrete to steel (Author, 2009)

Raised grass areas create spaces off the beaten path and break the monotony of the flat terrain.

Borntoro and gravel-filled detention dam planted with various wetland plants and trees which like wet feet

Detention dam which collects water from the Hans Glockschein channel to be used for irrigation of food gardens

Figures 262 - 263: Perforated steel sheet bolted to angles using an M8 cup square bolt - forms the seat

2 x 90° 6G6G unequal leg steel angles welded together and welded to a base plate - 300mm in length

Mild steel base plate, 400x200x8, bolted to the concrete using a precise M8 x 12 bolt

Perforated steel sheet bolted to angles using an M8 cup square bolt - forms the seat

2 x 90° 6G6G equal leg steel angles welded to the case of the other angles. Continues the length of the seating bench

Mild steel base plate, 400x200x8, bolted to the concrete using a precise M8 x 12 bolt
Part 4: Conclusion

“Learn 2 live, live 2 learn” is an empowering landscape at the heart of Pretoria University’s educational division in Mphakathi. This landscape attempts to integrate the surrounding community with the campus through the shifting and rethinking of fences, and the creation of a community park as the interface between the two. This open green space provides areas in which members of the community can gather, play and reflect. It is also equipped to handle the hosting of workshops and short courses.

“Learn 2 live, live 2 learn” embeds itself well within the vibrant atmosphere of the Township through the incorporation of robust, multi-functional spaces that are accessible to all. It also makes use of sensory and ephemeral elements to create places of interest; places people will identify with, remember and come back to. Landmark elements, like the aqueduct and the female sculptures are employed not only as focal elements, but also as community art works and exhibitions of skill. These 'announcements' in the landscape speak of the culture and identity of the surrounding people and become a testament to their pride, hope, diversity and sense of self - true matriarchal symbols.

The strong sense of place created, and the resultant empowerment will, in time, bring about the rejuvenation of the campus in such a way that it can be of benefit to all. No longer an island, the University will function as a stitch - bringing together people, connecting minds and interlinking thoughts. The University thus becomes an example of a new type of education - one that starts in the landscape.


City of Tshwane. [S.a.] Township Tourism Book, *Mamelodi Section*. City of Tshwane


Dannenmaier, M. [S.a.] *Sticks, Stones, Water and Leaves*. Landscape Architecture, Vol. 84.10, p. 61


Nel, M. [S.a.] *The Landcare Permaculture Booklet: South Africa’s first grassroots permaculture manual*. South Africa: Department of Water Affairs and Forestry


van der Waal, G. M. 2000. *Mamelodi Heritage Route Brochure*. van der Waal Collection, Africana Section, UP library


Appendix 1: Definition of 'community'

COMMUNITY
IS

THE SPECIFIC SYSTEM OF ACTION WHICH ARISES
(Theory of systems)

WHEN A HUMAN POPULATION.
(Demography)

SETTLED IN A GIVEN TERRITORY, ESTABLISHES
(Geography)

STRUCTURAL ARRANGEMENTS FOR ADAPTIVENESS TO IT IN ORDER TO LIVE AND SURVIVE
AS A GROUP,
(Economics)

DEVELOPING INTERACTIVE RELATIONSHIPS AMONGST ITS COMPONENTS, WHICH NOT ONLY
DEFINE AN ORDER KEPT OFF EQUILIBRIUM BY SOME KIND OF STRESS BUT ALSO
(Sociology)

ORIGINATE SHARED WAYS OF THINKING, FEELING AND ACTING WHICH ARE
(Cultural anthropology)

INTERNALIZED BY ALL THE POPULATION AND WITH WHICH EACH INDIVIDUAL IDENTIFIES
HIMSELF IN A PARTICULAR DEGREE ACCORDING TO HIS PERSONAL LIVING EXPERIENCE AND
INHERITED CHARACTERISTICS.
(Psychology)

Ferrinho (1980:5)
### Appendix 2: Hierarchy of needs

<table>
<thead>
<tr>
<th>Need Category</th>
<th>Description</th>
<th>Attributes of the urban environment associated with the satisfaction of needs (examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Physiological</td>
<td>Provision of food, shelter and health care.</td>
<td>Retailing/wholesaling systems distributing food, clothing and health supplies.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health care clinics and hospitals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Essential services (water, sewerage, power).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dwellings.</td>
</tr>
<tr>
<td>2. Safety - security</td>
<td>Protection from physical harm and intruders.</td>
<td>Fire and police protection services.</td>
</tr>
<tr>
<td></td>
<td>Privacy and absence of overcrowding.</td>
<td>Road safety.</td>
</tr>
<tr>
<td></td>
<td>Protection of property.</td>
<td>Absence of noxious environmental elements (pollutants).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Residential areas that ensure privacy.</td>
</tr>
<tr>
<td>3. Affection - belonging</td>
<td>Harmonious relationships with other members of the community.</td>
<td>Facilities for community organisations (meeting places).</td>
</tr>
<tr>
<td></td>
<td>Identification with and acceptance of groups within the community.</td>
<td>Physical layout of neighbourhood such that cooperative and harmonious inter-family relationships are fostered.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physical identity of the neighbourhood.</td>
</tr>
<tr>
<td>4. Esteem</td>
<td>Status and recognition by others in the community.</td>
<td>Opportunities for home ownership.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prestige of neighbourhood.</td>
</tr>
<tr>
<td>5. Self actualization</td>
<td>Role relationship vis a vis others.</td>
<td>Built environment that facilitates creativity and self expression.</td>
</tr>
<tr>
<td></td>
<td>Realization of one’s potential.</td>
<td>Employment opportunities and community organisations that enable the use and development of skills.</td>
</tr>
<tr>
<td></td>
<td>Creativity / self expression.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aesthetically appealing events and phenomena.</td>
<td>Recreational facilities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aesthetically appealing built and natural environment.</td>
</tr>
</tbody>
</table>

Appendix 3: Models not used in the main text

- Existing condition of site
- Emphasise the circle
- Question the question mark
- Lift the landscape, drop the library
- Urban rooms and major circulation routes
- Go vertical - intervene on building facades
- Major axis linking entire site
- Entrances and major circulation routes
- Aqueduct pulling through the centre
- Linking the library
- Enter under the aqueduct
- Irrigation of food gardens
### Appendix 4: Storm water calculations

#### Hans Strydom Channel:

<table>
<thead>
<tr>
<th>Month</th>
<th>Max Precip.</th>
<th>Min Precip.</th>
<th>Ave (mm)</th>
<th>Ave (m)</th>
<th>Water collection area (sqm)</th>
<th>Vol of water (cube m)</th>
<th>Area of channel (sqm)</th>
<th>Evap (mm/week)</th>
<th>Evap Vol (cube m/week)</th>
<th>Vol of water - evap (cube m)</th>
<th>Area to irrigate (sqm)</th>
<th>Irrigation (mm/week)</th>
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</thead>
<tbody>
<tr>
<td>Jan</td>
<td>469</td>
<td>17</td>
<td>254.5</td>
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#### Ramabulane

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#### Grey water Calculations:

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<th>Area amelioration dam (sqm)</th>
<th>Vol grey water/month evap (cube m)</th>
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**Grey water Calculations:**
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