Makers of Mamelodi | Baetsi oa Mamelodi
Makers van Mamelodi

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Project Summary | Projeke Kgutsufatso
Projek Opsomming

PROGRAMME: Workshops and offices for the proposed guilds of Hector Pieterson Road. This would serve as a decentralized Technical Vocational Education and Training (TVET) College.

SITE LOCATION: Corner of Hector Pieterson Road and Mathane Road, Mamelodi East, Pretoria, City of Tshwane. The area between Meetse-A-Bophelo Primary School and the pedestrian green route (unrealized highway).

GPS COORDINATES: 25°43′23.9″S 28°25′15.2″E

CLIENTS: Proposed Skilled Labour Guilds
Department of Higher Education and Training (DHET)
Relevant Sector Education and Training Authorities (SETAs)
Small Enterprise Development Agency (SEDA)

**RESEARCH FIELD:** Human Settlements and Urbanism

KEYWORDS: Pendulum migration, African street market, Skills shortage, Skills development, Collaboration space.

In accordance with regulation 4[e] of the General Regulations [G.57] for dissertations and theses, I declare that this dissertation, which I hereby submit for the degree Master of Architecture [Professional] at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further state that no part of my dissertation has already been, or is currently being, submitted for any such degree, diploma or other qualification.

I further declare that this dissertation is substantially my own work. Where reference is made to the works of others, the extent to which the work has been used is indicated and fully acknowledged in the text and list of references.

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Petrus S. Wolmarans
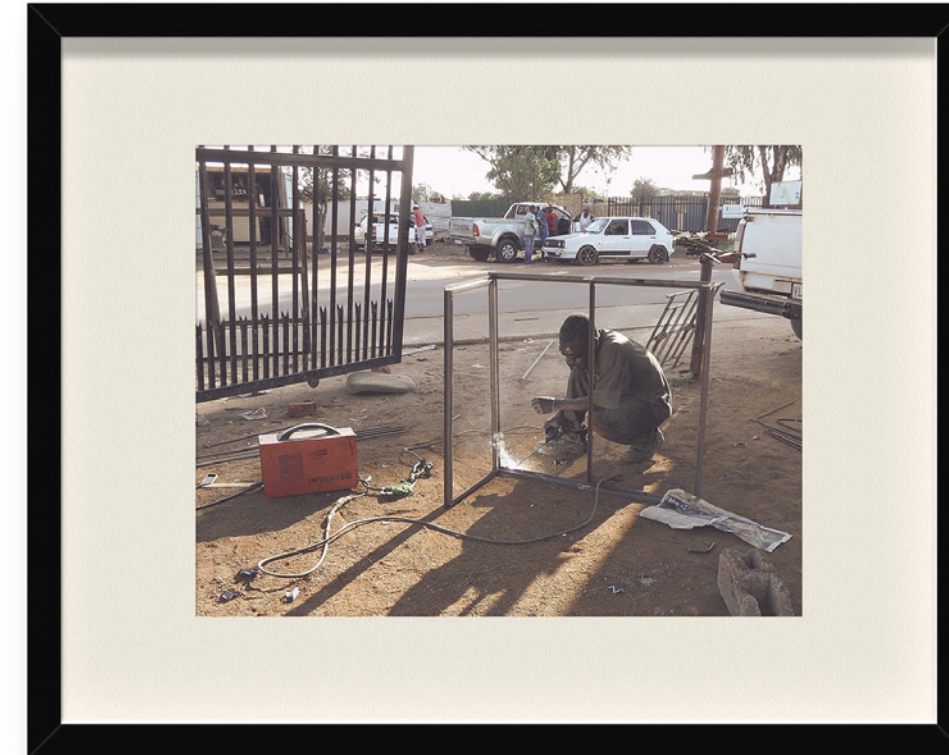
Architecture is Public. It takes up space either by crushing out of existence what has gone before or it attempts to blend and harmonise with what is existing.

-Jo Noero-

Acknowledgments | Leboha Bedankings

Aan my ouers, dankie vir jul oneindigende ondersteuning.

Oupa, vir al die bou, peuter en maak op die plasie toe ek klein was.

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Siya en die studio maats, dankie vir die lekker saamwerk en kameraadskap.

Juffrou Connie, vir die kunsklas-toevlug op skool.

Samevatting

Suid-Afrika ervaar huidiglik uitdagings soos hoë vlakke van werkloosheid, ongelykheid en armoede. Die vaardighede tekort in Suid-Afrika is een van die grootste struikelblokke om werk te kry asook om armoede te bestry. Volgens McGrath (2012), moet die TVET sektor versterk word om toegang te voorsien tot hoë gehalte tegniese beroepsonderwys vir almal.

Die verhandeling ondersoek die potensiaal van 'n TVET kollege, as 'n katalitiese openbare gebou, om sy gemeenskap op te hef deur beide sekulêre en opvoedkundige funksies.

Mense is makers, alles rondom ons is of deur die mens of die natuur gemaak. Deur die nodige vaardighede te hê om te kan maak, het ons ook die vaardigheid om ons toekoms te vorm. Hierdie projek-ondersoek sal spesifiek kyk na vaardighede as ontasbare erfenis en hoe samewerking gemeenskappe kan bemagtig in die vorming van hul eie toekoms in 'n veerkragtige manier.

Abstract

South Africa currently faces challenges such as high levels of unemployment, inequality and poverty. The skills deficiency in South Africa is one of the biggest obstacles to finding employment and poverty reduction. According to McGrath (2012), the TVET sector needs to be strengthened in order to provide access to high quality technical vocational education for all.

This dissertation investigates the potential of a TVET college as a catalytic public building to uplift its community through both secular and educational functions.

Humans are makers, everything around us are either made by humans or nature. By possessing the necessary skills to shape things, we also have the skill to shape our futures. This project investigation will specifically look at skills as intangible heritage and how collaboration can empower communities in shaping their own futures in a resilient manner.

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1.1 Introduction

Pendulum migration is the daily journey that workers undertake to get to work and back home. By itself, pendulum migration is not necessarily a negative phenomenon and certainly not unique to South Africa. Coupled with poverty, failing public transport and a lack of economic opportunities, this however amplifies inequality and burdens the poorest of society the most. The current pendulum migration has left Mamelodi-East mostly empty during the day, but still there are pockets of economic activity, mostly situated on the routes serving this daily trek.

An applied research methodology and critical analysis of the immediate and national contexts have influenced design decisions. This dissertation will explore the role that architecture, as well as other skills of the architectural profession, can play in community development through elevating the ritual of the everyday.

The project aims to use local skills and trades to harvest the energy of daily pendulum migration in order to uplift the community and create a healthier work-commute relationship with the broader city.

"We do not need merely sustainable human settlements; we need communities that can actively participate in the regeneration of their environments and so enhance their own quality of life as well as their environments"

(Cronjé, 2013:15).

Figure 1.1 Map of Mamelodi in relation to Pretoria CBD (Author, 2016)

1.2 Pendulum Migration

In her blog entry for the Mail & Guardian, Koketso Moeti (Moeti, 2013) wrote about her experience on Pretoria's Metrorail;

"… the group of men playing cards, the elderly man preaching, the people enthusiastically discussing politics and the occasional young woman chatting about how her partner is eventually going to start cheating because she leaves so early and arrives so late. Like public hospitals, the train is where you get to hear the dominating narrative of ordinary people."

The seemingly never-ending expansion, together with Modern and Apartheid planning principles, has left Mamelodi reliant on neighbouring areas for income generation. The pendulum migration towards the Pretoria CBD and surrounding suburbs leaves Mamelodi almost desolate during working hours. Commuters waste a lot of time in transit and it is quite costly for a predominantly poor area.

Mamelodi has expanded greatly towards the East, but lack amenities in these new areas. This, together with the Spatial and Economic Legacies of Apartheid planning, has made it hard for Mamelodi to become a resilient community that can provide for itself.

Figure 1.2 8:45 pm on the Marabastad-Waterval bus. 45 minutes to the terminal. (Goldblatt, 1989)

Figure 1.3 Trainsurfing on the Kaalfontein-Tembisa route (Kritzinger, 2007)

Figure 1.4 Boarding the first bus at Mathysloop. It should reach the terminal at Marabastad, in Pretoria, two and a half hours later, at 5:15 am (Goldblatt, 1989)
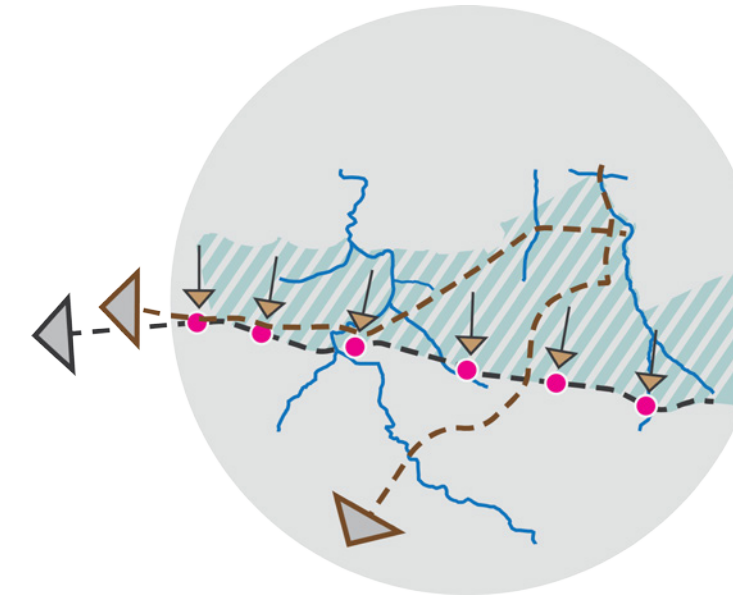
Daily commute to work is not unique to South Africa but is a result of modern town and regional planning. This planning style was applied during the Apartheid era but, as can be seen from maps of Pretoria, traditional black neighbourhoods were situated further away from the CBD than traditional white neighbourhoods. Although the city centre has been democratised many of the traditionally black neighbourhoods still rely on the surrounding areas for economic opportunities.

This daily trek tends to have a bigger burden on lower income communities as the ratio between money spent on commute and income differs greatly from higher income communities. From observations these higher income areas also don't appear as empty during the day as lower income areas such as Mamelodi. This might suggest that there is a healthier balance between daily pendulum migration and local economic opportunities.

According to Dewar (1984) the creation of 'large dormitory townships', like Mamelodi, which lie on the urban edges of South African cities and towns, imposes substantial costs in terms of transport time and travel cost, which marginalises them from wider urban opportunities.

Figure 1.5 Current daily exodus in Mamelodi (Author, 2016)

1.3 African Market Streets

In *Market streets in South Africa's informal settlements*, Gerald Steyn describes the African market street as one of the most contested spaces in the built environment. It is seen as a busy and crowded place that has to be shared by traders, pedestrians and vehicles, mostly minibus taxis. Hawkers often earn respectable incomes but small-scale trading is essential and often a desperate initiative for the very poor.

The formal economies of sub-Saharan African countries are unable to cope with the alarming rate of urbanisation and population growth, which has resulted in high rates of unemployment and poverty. The livelihood of many people depends on an informal economy such as hawkers and small traders in small sidewalk shops, and artisans and technicians in home industries. Steyn states that informal trading is an "economic exigency" and that the market streets of sub-Saharan Africa show how "Africans can adapt and shape an urban area in their innovative quest for self-sufficiency" (Steyn, 2008).

According to Mitullah (2003) street trade is a source of employment and income for many urban dwellers and has in the past, been viewed as an underground activity that undermines the healthy function of the formal economy.

Mitullah (2003) also states that this perception has resulted in conflicts over licensing, taxation, site of operation, sanitation and working conditions with urban authorities.

The first urban appearance of market streets occurred in the first cities of the Middle East. Here the souq (bazaar street) has survived for more than 8000 years. The Muslim conquests spread this typology into North-Africa where the historic cores of these Islamic cities still have these souqs. The Arab souq is a significant typology and organiser of urban space (Steyn, 2008).

Figure 1.6 The Souq In Marrakech (Time Lapse HD, 2016)

Figure 1.7 Kariakoo market, Dar es Salaam (Tinning, 2013)

Figure 1.8 Accra-street market (Sanchez, 2013)

1.4.1 Real World Problem

Technical Vocational Education and training colleges (TVET), previously known as Further Education and Training colleges (FET), are at the centre of skills delivery to drive the South African economy. This can help reduce unemployment and improve the livelihoods of millions of South Africans. (South African Government, n.d).

In 2015, South Africa witnessed the #FeesMustFall protests that embodied the outcry for more accessible tertiary education. The protests united students from all socio-economic backgrounds and enjoyed major public empathy. The protests however turned violent, ranging from burning of university artwork to burning down buildings.

This destructive behaviour caused majority of students to distance themselves from the movement in 2016 and the public lost their empathy. The problem of access to education however still persists with government showing little to no leadership in attempting to solve the crisis.

The debates around the #FeesMustFall protests focused mostly on university degrees and neglected to address access to short-courses, technical qualifications and the overall employability of school leavers.

Figure 1.9 Bus set alight in Johannesburg CBD (Ngcobo, 2016)

South Africa currently faces challenges such as high levels of unemployment, inequality and poverty. Thus, the TVET sector needs to be strengthened in order to provide access to high quality technical vocational education for all, without losing sight of the TVET's special relationship with the worlds-of-work (McGrath, 2012: 627).

The skills deficiency in South Africa is one of the biggest obstacles to finding employment and poverty reduction.

According to Manpower Group's 2015 Skills shortage survey, 31% of businesses have difficulty filling jobs.

Skilled trade worker vacancies are on the top of this list. South Africa's National Development Plan requires that at least 30 000 qualified artisans are produced a year by 2030. But South Africa is only producing around 12 000 artisans a year.

According to the Human Resource Development Council of South Africa's report (HRDC, 2014)., Strengthening and supporting TVET colleges for expanded access and increased programme quality, a TVET policy has to be rooted within a sustainable livelihoods approach.

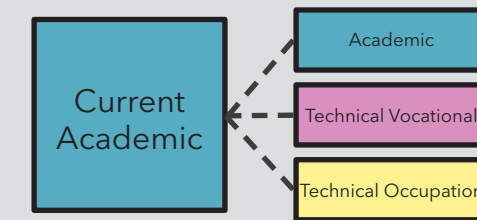Figure 1.10 UCS illustration data (DHET 2013, adapted by Author, 2016)

Figure 1.11 Proposed three stream schooling system (Author, 2016)

From 2017 on, the Department of Basic Education is implementing a 3 stream schooling system, which it hopes will eventually see about 60% of pupils completing technical qualifications. The plan is to split the current Academic schooling into; Academic, Technical Vocational and Technical Occupation. According to Mathanzima Mweli, director general at the Department of Basic Education, as part of the Technical Occupational stream, the department will introduce 26 subjects, which will include spray-painting, panel-beating, hairdressing, woodwork, glasswork, glazing, welding, upholstery, husbandry, farming etc. (News24 correspondent, 2016).

This proposal is however not accompanied by a plan to provide the required workshops, materials or infrastructure needed in order to teach these subjects.
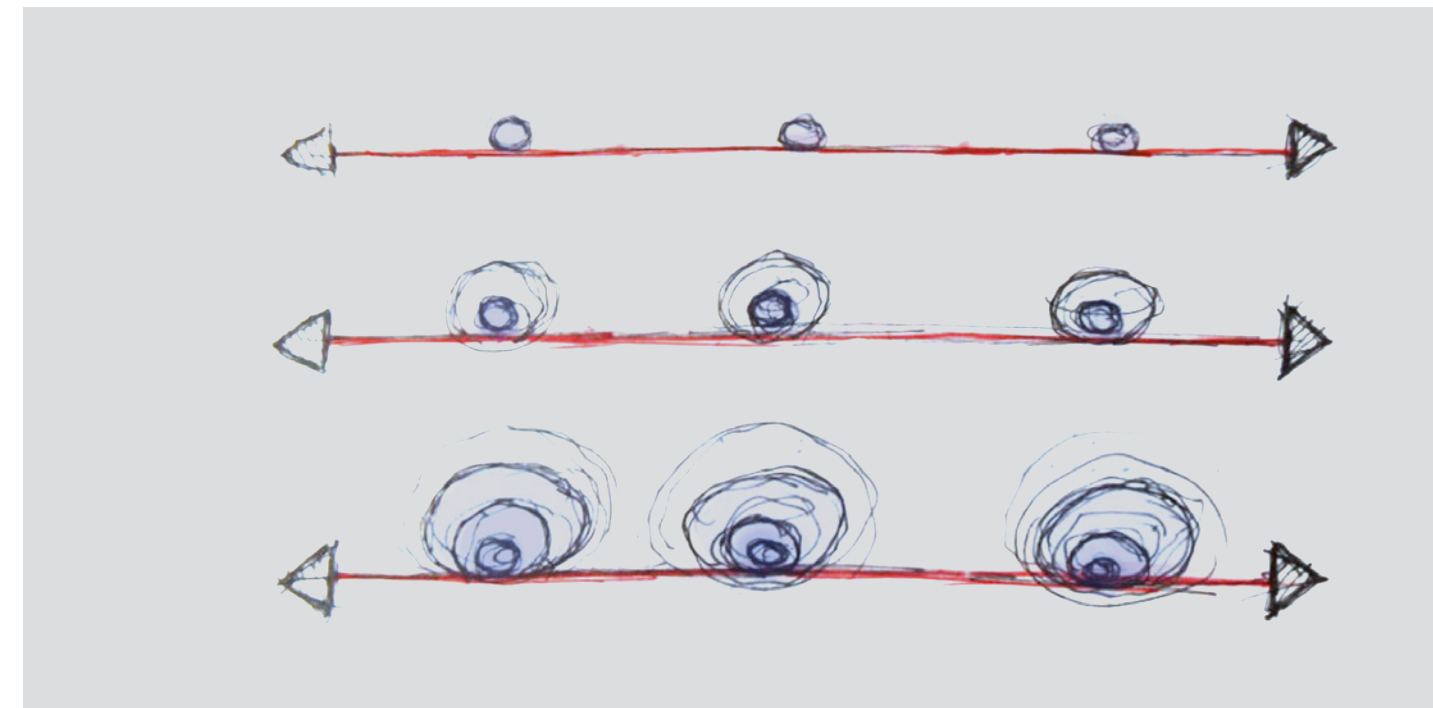
Mamelodi is still heavily reliant on pendulum migration due to it being segregated from the rest of the city because of Apartheid's spatial legacy. The intention is to harvest energy from this daily pendulum migration to create resilient nodes that would provide a platform for collaboration to local skills and trades. This platform would hopefully reduce the need to seek employment and education far away.

The project will also look at how training can be provided in a decentralised manner. This new type of educational institute should be able to grow over time and use the local people as resources.

Figure 1.12 Gradual harvesting of daily pendulum migration (Author, 2016)

1.5.1 Urban Issues

According to Vestbro (2012) South Africa faced a big housing problem due to rapid urbanisation, as a result of gold and diamond mines that were established at the end of the 19th century. The Land act of 1913 drove this urbanisation process even further. This law restricted 75% of the population to 7.5% of the land, that increased to 13% in 1936. The execution of this law led to forced removals of some non-white families and aggravated living conditions in rural areas (Vestbro, 2012)..

These laws resulted in Mamelodi having an unhealthy relationship of reliance with the broader city both in relationship and urban terms. Although relations have improved, Mamelodi-East still has many urban issues that are further worsened by urban migration. Streets, public places, parks and transport are not responding to the community's basic needs, while daily pendulum migration steals valuable time that could have been spent with family, socializing or further education.

The township features many characteristics of Apartheid planning, as identified by Franco Frescura (Frescura, 2000), which will be discussed later on.
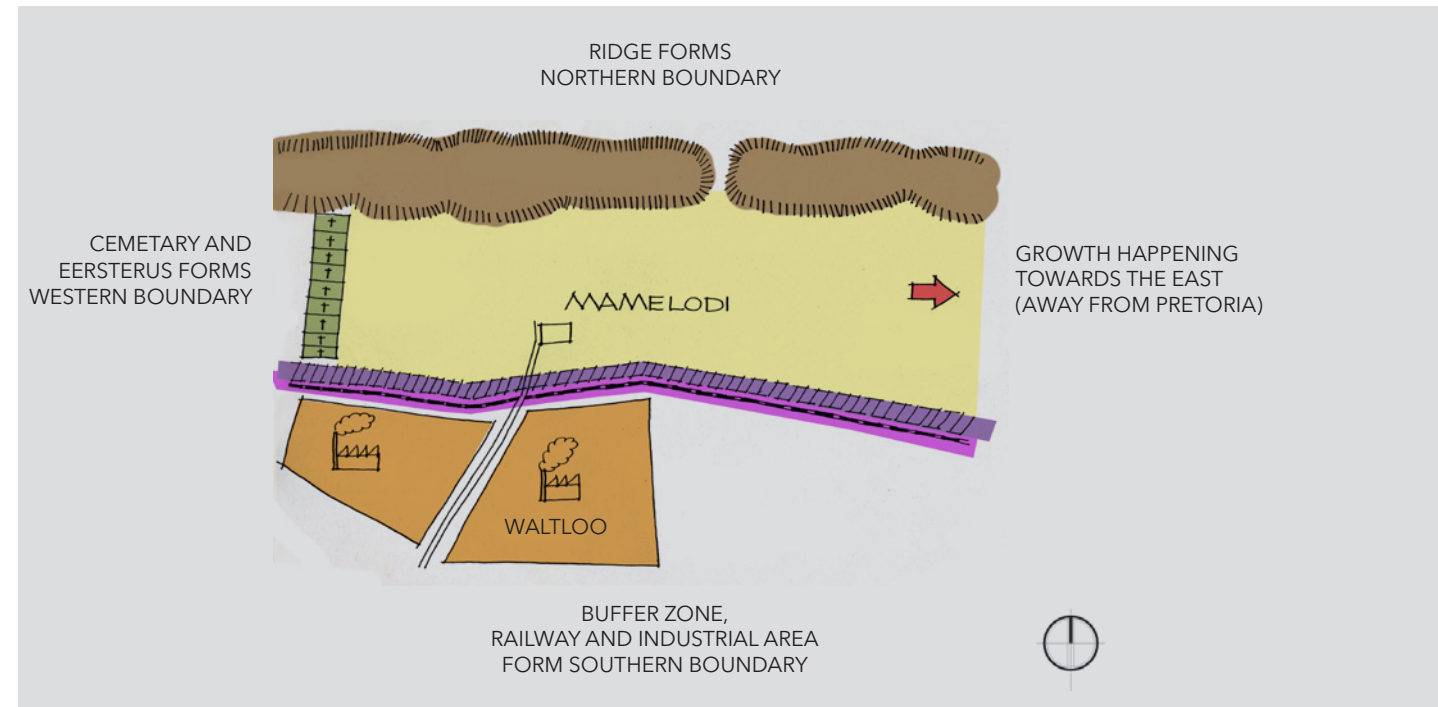

Figure 1.13 Adaption and translation of boundary map done by Mamelodi-Studie (Fortsh, et al., 1987)

1.5.2 Urban Intentions

The urban intention is to establish a better relationship, in terms of reliance and connectivity, with the broader city and Mamelodi with itself. Although many pockets of social vibrancy exist within Mamelodi-East, there is still a general sense of placelessness.   The precinct proposal specifically looks at the establishing a node where the green route and Mathane road intersect.

Relph (1976:147) says that a deep human need for associations with significant places exists. If this need is ignored and the forces of placelessness allowed to continue, then the future can only hold an environment in which places are insignificant. But, as Relph (1976) states, if we choose to answer to that need and transcend placelessness, the potential exists for the growth of an environment in which places are for man. These places reflect and enhance the variety of human experiences.
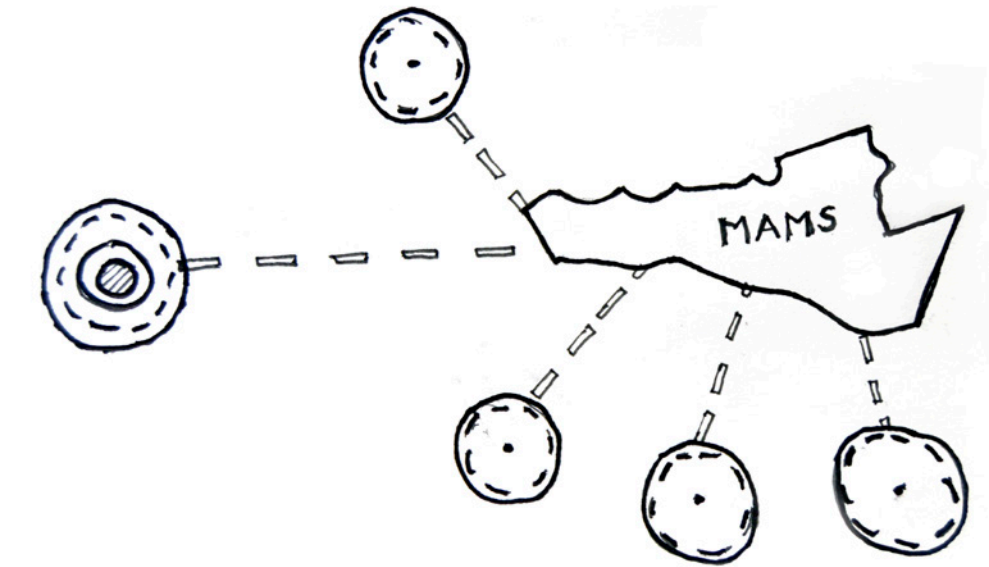

Figure 1.14 Reliant Mamelodi (Author, 2016)

1.6 Architectural Issue

The stalls of the vendors, and skilled trades have opportunistically appropriated the sidewalks along daily migration arteries as can be seen in Figures 1.15, 1.16 and 1.17. In the case of Hector Pieterson Road, the sidewalks are wide enough to accommodate these stalls. This has provided excellent exposure but the temporariness of stall structures has not added to a sense of place.

Steyn (2008) describes the stalls in Mamelodi as "truly makeshift and improvised, with no aesthetic concern". He reasons that this could be because materials, that are in a good condition, would be quickly stolen at night. The study also explains that this is why all vendors stressed that they do not want to live behind or above their shops, as burglars from outside the area would then know where to break in and steal their stock.

Currently many of the stalls on Hector Pieterson road are not connected to any services. This, together with storage problems and occupational health hazards, make these enterprises vulnerable, limits their growth and in some cases pose physical dangers to both the owners and pedestrians.

The vibrancy of this street however masks the broader underlying problem of the lack of public space in Mamelodi-East.

Figure 1.15 Sidewalk stalls, Mamelodi (Author, 2016)

Figure 1.16 Sidewalk working conditions (Author, 2016)

Figure 1.17 Sidewalk as "welding booth"(Author, 2016)

1.7 Problem Statement

The void left by daily pendulum migration is a clear indication of the lack of economic opportunities in Mamelodi. The current street stall typology reflects the poverty in Mamelodi-East and does not visually contribute to a positive sense of public place or provide a safe working environment to skilled workers. The small scale of trades and lack of skills development restrict job opportunities, economic growth and local infrastructure development.

1.8.1 Research Question

What is the potential of a catalytic architectural intervention to support and strengthen the existing network of skills and trades?

How can the broader set of architectural skills, facilitate in providing a platform that allows for collaboration, skills transferal and economic opportunities?

Figure 1.18 Scattered skills and trades (Author, 2016)

Figure 1.19 Potential network of skills and trades (Author, 2016)

Figure 1.20 Potential linkages with other networks (Author, 2016)

1.8.2 Sub Questions

-How can the existing typology be adapted to be more conducive to collaboration?

-Which patterns, from A Pattern Language, are present in the informal settlement of Mamelodi-East?

-How can these patterns be used to fortify the livelihoods of the community?

1.8.3 Hypothesis

Architecture and the broader architectural skillset has the potential to fortify the livelihoods of existing networks and assist them in becoming resilient communities.
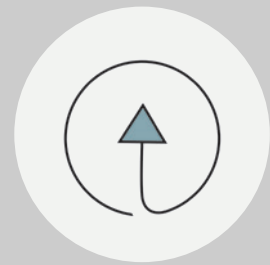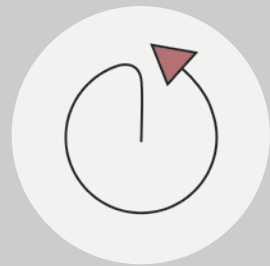

Figure 1.21 Daily exodus, missing catalyst and resilience through self-reliance (Author, 2016)

1.9 Project Intention

Through making the ordinary special and more accessible Hamdi (2004:xix) says that we can "liberate the latent potential of the everyday" . The project aims to create an improved balance between Mamelodi and the broader city in terms of daily pendulum migration and economic activities.

Relph (1976 defines placelessness as "the casual eradication of distinctive places and the making of standardized landscapes that results from an insensitivity to the significance of place". The investigation focusses on the "leftover residents" and how their skills can be used to improve this local issues of placelessness, poverty and further education. By looking at the ritual of the everyday, the project aims to facilitate daily movement and encourage internal economic activity through collaboration.

The resourceful services and trades, that are scattered along the daily trek routes, could be used to kick-start economic activity as well as improve the experience of theses trek routes. Over time these small scale improvements could contribute to a better sense of place and dignity.

The proposed architectural intervention aims to resourcefully mitigate between the formal and informal by celebrating the everyday.

1.10 Research Methodology

Mapping
Intensive site investigation, together with mapping done during the urban framework, informed the development of the Mamelodi Urban Vision and Bophelo Precinct Plan. Multiple site visits will be made to help identify daily rituals and routes to better understand the experience of place. The mapping of existing skills and trades provided clues to the untapped possibilities.

Literature
Theoretical studies involving informal settlements and skills development will be investigated to inform conceptual arguments. Historical studies of context will be examined to better understand current situations and inform an appropriate programmatic response.

Applied Research
The data collected during the different mapping methods are applied to understand the requirements of the design and to develop a pragmatic response to the Architectural problem.

Precedent Studies
Precedents of similar situations are explored to further inform observations and intentions.

1.11 Theoretical Approach

The dissertation will investigate the role of the broader architectural skillset in transforming dependent people into resilient communities,

Building art is a synthesis of life in materialised form. We should try to bring in under the same hat not a splintered way of thinking, but all in harmony together. (Aalto, n.d.)
This investigation is greatly influenced by the livelihoods approach that considers people as active agents in improving their livelihoods.

I would like to use architecture to create bonds between people who live in cities, and even use it to recover the communities that used to exist in every single city. (Ito, n.d.).
Living networks can be strengthened by designing for interaction and collaboration. These networks can in return be used to create better public places and improve the resilience of a community.

To think that their present circumstances and their present societal arrangements might be sustained; that is an unsustainable thought for the majority of the world's people (Marcuse, 1998:103).
Humans are social creatures and have evolved to be part of a community. Many cities have difficulties with this "sense of community" as a lot of buildings and city layouts are not conducive to human interaction. There is a need for self-sustainable communities that can actively take part in the improvement of their own lives. Architecture can serve as a catalyst to activate and unlock opportunities within a community.

1.12 Programme

The proposed programme utilises left-over residents as a catalyst to create economic opportunity and improve the everyday experience of daily pendulum migration routes.

The intervention consists out of 3 fractal phases;
1.   Network establishment
2.   Street upgrade
3.   Collaboration and skills
        developments

The project mainly focuses on phase 3 which proposes the formation of a decentralised TVET college by the proposed trade guilds.

The proposed guilds, made up of the skilled trade workers of Hector Pieterson road, together with the Department of Higher Education and relevant SETA's form decentralised owners of the proposed TVET college
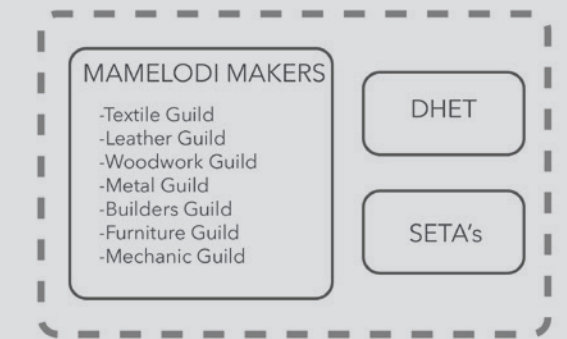

Figure 1.22 Decentralised owners of the proposed TVET College (Author, 2016)