001 INTRODUCTION

A commonly accepted aspect of our education system is the giant leaps we need to take when passing from one phase to the next. The disparity between school and university is significant and the gap between graduation and your first working experience even bigger. The learning curve is staggering as we are thrown in at the deep end, trying to come to terms with applying theory to reality.

At the University of Pretoria (UP), as with most other tertiary institutions in the country, the educational emphasis is on the theoretical content of the courses offered and very little attention is given to so-called "soft skills", such as entry level business, management and people skills, needed to launch a successful career. The lack of proficiency in these skills adds to the common perception that a huge gap exists between the university and the work environment.

I believe that more can be done to better equip graduates for their first work experience.

The goal is to create a sheltered environment in which related professions as well as professionals and students at different levels of proficiency in their profession, can interact and learn from each other as early on in the education process as possible. The emphasis is placed on the user-interface between the project and its surroundings by providing students and young professionals with maximum exposure to the outside world and vice versa; as well as on the interactive social and work related activities taking place within the building itself.

In addition to the above, clients are often unaware of the complexities of the design process and this lack of knowledge leads to reluctance to pay for quality design. By exposing the public to the process of design, I hope to help propagate a better idea of the creative energy and effort involved and get potential students excited about the prospect of a career in the creative professions. A potential platform is thereby created where students and young professionals are continually challenged in terms of observing and being observed.

The architecture should itself promote interaction and serve as a branding image for the campus. The prominence of the proposed site opens up the possibility of investigating an iconic gateway building, indicating the threshold between public and private. This could be achieved in terms of movement patterns and alternative treatments of boundaries and barriers, i.e. 'boundaries without barriers'.

002 HISTORICAL PREMISE
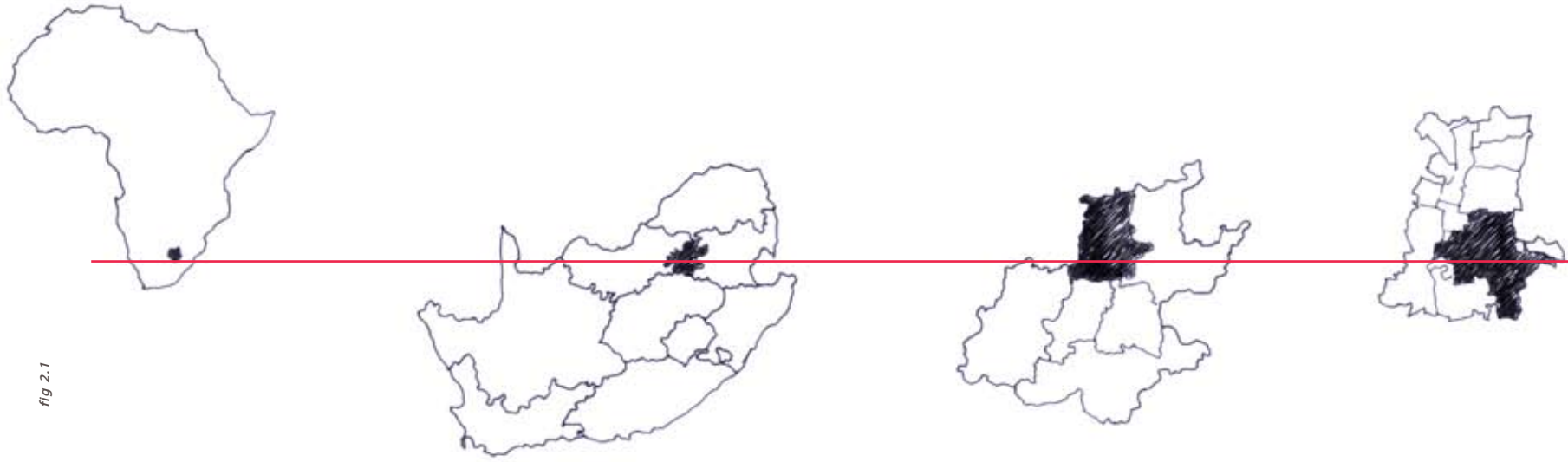
2.1 The City

2.2 The Campus

fig 2.1

fig 2.2

002   HISTORICAL PREMISE

2.1 The City

Pretoria falls within the City of Tshwane Metropolitan Municipality, in the Gauteng province and is the administrative capital of South Africa. The Tshwane City Vision states that Pretoria is "to become the leading international African capital city of excellence that empowers the community to prosper in a safe and healthy environment".(http://www.tshwane.gov.za/about.cfm)

fig 2.1 location of The City of Tshwane within Africa

fig 2.2 aerial of Tshwane Metropolitan area

2.2 The Campus

Historically, the site on which the main campus of the 'Transvaal University College', the precursor of the University of Pretoria, was situated, formed part of the farm 'Elandspoort'. The farm included the entire area on which the current campus is situated and continued up to the eastern bank of the Apies River. Gert Bronkhorst owned Elandspoort until 1857 when it was sold to Jan Schutte and appropriated by James Mears (Ad Destinatum, 1910-60:264).

The campus developed and expanded as student numbers grew. Prior to the 1940s the placement of buildings on the campus was entirely haphazard. Then in 1940, Gerhard Moerdyk devised a masterplan for the layout of campus. In 1953 Prof. A.L Meiring defined the edges of the central quadrangle by locating buildings around its perimeter, with the focus on the Old Arts Building. He consciously strove to implement a more orderly campus plan, to facilitate the creation of place (Ad Destinatum 1910-60:272). At this time the campus was bordered by the current Roper and University Streets, and stretched from Burnett Street in the north and towards the Pretoria Boys High School in the south. The placement of the buildings was influenced by the movement hierarchy and existing roads, of which Tukkie Laan was a main route (Ad Destinatum 1910-60:273). Except for minor alterations, the buildings remain true to their original design by means of continual maintenance.

As the university expanded even more and needed more space, it spread out towards the east crossing Roper Street. Roper Street became a central axis on campus and after 20 years of negotiations it was decided to close Roper Street to vehicles, but not to pedestrians (Ad Destinatum 1961-80:56). At some stage, due to security concerns, the University completely

closed the street to the public, giving the university sole access and creating the confined campus as it is today.

Today, the University of Pretoria exists as a fenced island in the midst of the greater urban environment, creating an enormous urban barrier. It is territorial in function, being homogenised internally and alienating externally. The boundaries of the campus are defined by an iron barrier of palisade security fence that is interrupted by student access gates.

The lack of permeability of a campus with limited and controlled access points should be a cause for concern. Bentley et al. (1985:35) states that "permeability is the key measure of responsiveness" and describes it as the "extent to which an environment allows the flow of people from place to place". It is obvious that the permeability of the campus is affected negatively by the imposition of the security measures. The boundaries of the university are both physical and conceptual. They define the

sprout from this central point. To the north of the Student Centre is a major circulation spine with hundreds of students passing through daily. On either side of the route are a few hostel annexes and covered parking bays, but unfortunately, possibly because most of these buildings were acquired rather than built, the clean, planned layout of the original campus framework had not persisted.

fig 2.3

fig 2.4

fig 2.5

A university in principle is a public institution, predominantly subsidised by government funding, and in function serves the greater community. But as a result of crime and the desire to keep the students safe, the campus has been completely cordoned off, effectively severing all public-student interaction. The previously mentioned gap therefore exists not only on the level of applied skills but also in physical or spatial location.

degree of accessibility to the university by determining the openness of the institution to different populations that are not part of the university community.

Currently, Roper Street forms an axis down the middle of the main campus and is a major channel with high volumes of student traffic with the Student Centre at the heart of it all. Practically all the main routes on campus

fig 2.3 university of pretoria campus plan, 1930

fig 2.4 aerial photo of U.P. campus, 1950s

fig 2.5 aerial photo of U.P. campus, 1990

fig 2.6 locality of site and surrounding features

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

METRO RAIL STATION

BURNETT STREET COMERCIAL HUB

OLD AGRIC

GAUTRAIN STATION

URBAN GATEWAY TO PRECINCT

UP ADMINISTRATION

STUDENT CENTRE

TECHNICAL SERVICES

UP MAIN ENTRANCE

GIRLS HIGH SCHOOL

PRETORIA OOS LAER SKOOL

STUDENT RESIDENTIAL

fig 2.6

003 THEORETICAL PREMISE

3.1 Designing the
University of the Future

3.2   Safety in Urban Design

3.3   Safety Principles

003   THEORETICAL PREMISE

3.1   Designing the University of the Future

We are currently witnessing profound social, cultural and technological changes that are transforming traditional institutions. The university remains the primary centre of higher learning throughout the world, as well as the main repository of accumulated wisdom (Bell, 1973:10). Jacov Haina and Rifca Hashimshony in their paper 'Designing the University of the Future' (2006) argue that universities will undergo major organisational and physical changes as they adapt their activities to meet present and future needs.

The UP will have to adapt to these changing circumstances if it is to become the research institution with international renown envisaged in their vision. The highly varied and conflicting societal pressures placed on the university have generated discussion about the need to redefine the role of this institution to better serve the needs of contemporary society.

I will briefly look at how they and other authors expect the university of the future to change and then how these changes would affect its spatial layout.

3.1.1   Current Campus Design

Walking across a great university campus can be one of the most memorable and palpable experiences of place we ever contend with. Prospective students, their parents, and faculty consider the overall feel of a campus as one of the key deciding factors when selecting a school. The quality of a school is often judged by its sense of place and by the activities going on across the campus grounds as well as in adjacent streets, neighbourhoods and towns.

Successful campuses create an inherent sense of community by offering many ways for people to interact with each other in the spaces between buildings. To create this interaction, campuses need a large variety of activities that are not specifically academic. It is not enough to build a university around the specialised needs of its academic programs; it also needs a collection of distinct gathering places that catalyse interaction.

Conversely, the isolated and over-administered university of today kills the variety and intensity of diverse perspectives at the university and also limits the student's opportunity to shop for ideas.

To re-create this kind of academic freedom and the opportunity for exchange and growth of ideas two things are needed. Firstly, the social and physical environment must provide a setting which encourages rather than discourages individuality and freedom of thought. Secondly, the environment must provide a setting which

encourages the student to see for himself which ideas make sense - a setting which gives him a multitude of opportunities and maximum exposure to a great variety of ideas, so that he can make up his mind for himself (Alexander, 1977: Pattern 43).

The ideal of a university has been a lively setting where students gather in pubs, coffee shops, public plazas, and diners to discuss what they've learned in class as well as flirt and philosophise. The University of Pretoria campus, I believe, falls far short of the mark in providing lively public spaces. Making the campus a better place for public interaction will enhance the creative atmosphere for students, teachers and administrators alike. There is a need for cross-fertilisation and collaboration now more than ever.

The key to making a campus more than the sum of its parts is the clustering together of activities to create a busy, dynamic place for many different types of people at different times of day. A campus that sits all by itself, cut off from the commerce and life of the local community, solely devoted to classrooms and university activities, provides a barren and unrewarding experience for students.

Arguably two of the best campuses in the U.S. is the Savannah College of the Arts in Georgia, and the College of Charleston in South Carolina, because their buildings are actually woven into the city fabric rather than standing apart on their own separate sites (PPS, 2008).

A university and the surrounding community boost each other when they cooperate on a wide range of matters. The happy result is often a strong local economy with a highly skilled workforce and cutting-edge businesses spun off through the presence of entrepreneurial professors and graduate students. More examples of this are Iowa City (with the University of Iowa) and Champaign-Urbana (University of Illinois) as vibrant communities with low levels of economic inequality that thrive on their connections with their universities (PPS, 2008).

As incubators of innovative ideas, universities are poised to pioneer sustainable building practices for the future. Campuses need to be thought about in terms of destinations, how the various buildings relate, where the gathering places are located, where you want walkways, and then fitting the streets into that vision.
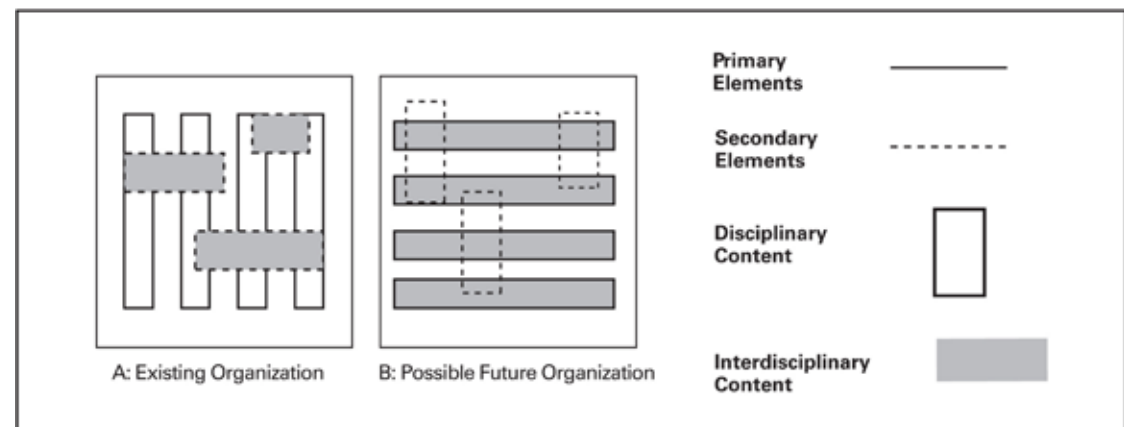

fig 3.1

A: Existing Organization   B: Possible Future Organization

Primary Elements
Secondary Elements
Disciplinary Content
Interdisciplinary Content

3.1.2 Factors that may Define the Future University

Transportation in general has become a thorny issue at the UP. It obviously must be accessible for staff and students living off-campus, but not overrun by wide roads and huge parking facilities that destroy the intimate, pedestrian-scaled environment essential to a quality educational experience. Accommodating the automobile too much has resulted in the campus becoming a drab, uninspiring place sealed off from the life of the community around it. I would suggest aggressive efforts to promote bicycling, car pools and public transport. Dewar (et al. 1997:27) also stated that a city should be scaled on a model that uses pedestrian and public transport as baseline.

Delanty (2001:3) argues that the university is still the only institution in society where one can find research, education, professional training, and intellectual criticism together. With the expected changes to come, it is likely that the relative importance of these four activities will change. For example, the balance between research and teaching will change, while more tasks related to service to society may be added (Haina, et al. 2006:8).

Decisions made about balancing these activities will have a critical impact on the distribution of spaces within the university. According to Haina and Hashimshony, the factors which will be particularly important in defining the nature of the future university are the following:

• Financial challenges

As government support for universities has declined, these institutions have been forced to look for new funding sources. The need has therefore arisen to commercialise knowledge in order to cope with the financial difficulties (Haina, et al. 2006:8). Jarvis (2000:52) states that "universities should now be more responsive to the demands of the market, recognise the need to change their ways, be less independent and become more efficient".

• Collaboration with industry

The character of industry is changing rapidly in the face of the competitive forces of an increasingly global economy. The knowledge that can be provided by universities has encouraged the growth of collaboration between industry and the university (Haina, et al. 2006:8).

• Increasing student population and greater diversity

In recent years the growing student population has become increasingly heterogeneous. The change reflects the democratisation of higher education, the importance of knowledge to our society, and the changing structure of the labour force with a higher demand for educated workers and less demand for

fig 3.1 schematic description of changes in organisational structure of the university

fig 3.2 forces for change determining the future university
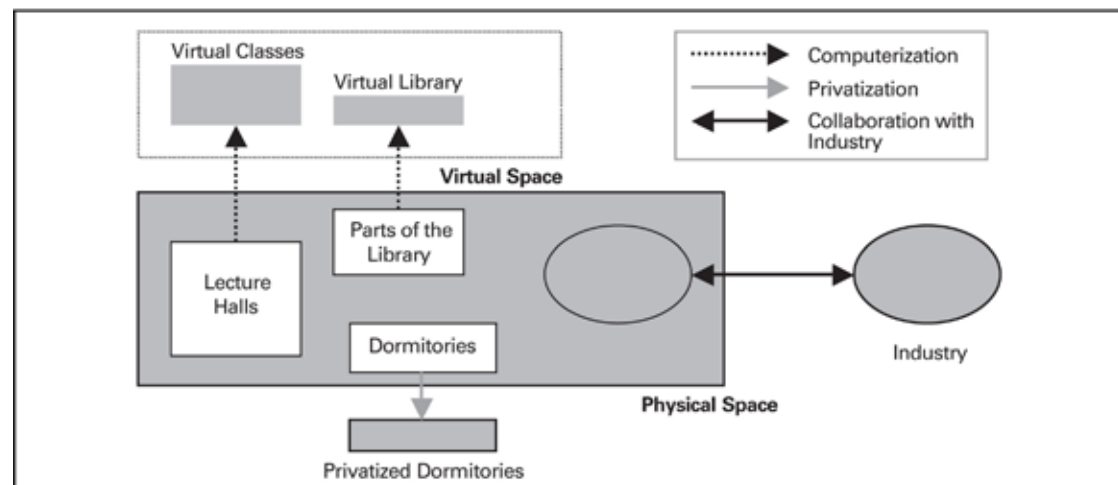

fig 3.2

labourers. This rapid growth of a more diverse student population will further increase both the number and type of institutions of higher education and will affect, in turn, the decisions about the missions and physical requirements of universities (Haina, et al. 2006:9).

- New patterns of teaching and learning

Major improvements in technology have provided access to digital knowledge resources and created the option of a virtual university in which virtual spaces replace the existing physical ones (Haina, et al. 2006:9). However, the physical campus should not be abandoned completely as it brings people together and allows for cross-fertilization of minds, and also creates a 'sense of community' and 'university spirit'. A combination of virtual and physical spaces should be considered.

- Growth of interdisciplinary fields of knowledge

Today's structure of knowledge is increasingly interdisciplinary in character. Interdisciplinary frameworks may become primary elements and in time may need defined physical spaces (Haina, et al. 2006:10).

- Openness to the community

The opportunity for the public to attend lectures, special courses, and evening activities may strengthen the image of the university as a central institution, responding to the needs of society. The implication is an increasing interaction between the university and the 'outside world'. As a result, the boundaries of the university campus will become more permeable and its facilities will be used more efficiently for mixed activities (Haina, et al. 2006:10).

Rigid functional organisation or spatial zoning was appropriate when departments were isolated and knowledge was divided into discrete disciplines. However, collaborative research and interdisciplinary knowledge can have a major influence on the spatial structure of the university. The need for an environment of mixed uses is enhanced by the existing possibility of studying and working from different places and by collaboration with industry (Haina, et al. 2006:11).

Multifunctional buildings, mixing different knowledge operations with leisure activities and even residence, may also appear. The mixed-uses strategy, with shorter physical distances between different functions, supports more flexible and spontaneous activities suited to current dynamic lifestyles (Haina, et al. 2006:11). Similarly, Jacobs states that "cities are natural generators of diversity and prolific incubators of new enterprises and ideas of all kinds" (1961:156).

The growing need for collaboration with industry, the new openness to the community, and the changes in the organisational structure of the university may well result in the blurring of its physical boundaries. The integration of students and academic staff in the life of the community and the emerging social role of the university as a bridge to the public also become highly important (Haina, et al. 2006:11).

3.1.3 The University-City

The basic architectural prototypes of university design, as described previously, should be re-examined in view of the forces of change that are affecting the missions of higher education institutions. For the University of Pretoria to stay an internationally recognised research and educational institution, they will have to adapt to these changing circumstances. With the UP's location in the ever expanding city, I believe it would need to merge with the city and become

what Haina (2006:11) refers to as the 'University-City'.

In the scenario of the University-City, a large volume of activities takes place in the virtual space, the organisation is physically decentralized, and the institutional boundaries are open.

The centrality of knowledge and its associations with components in the urban system, such as

schools, museums, industry, and leisure activities, blurs the limits between this type of university and the city. The university will be completely assimilated into the city and will become a unique entity. From an institutionalised point of view, this means a high degree of privatisation, a medium degree of computerisation, and a high degree of collaboration with industry and of openness to the community.
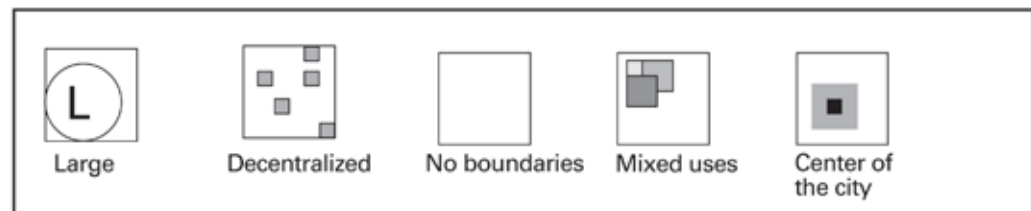
The University-City

| Large | Decentralized | No boundaries | Mixed uses | Center of the city |

fig 3.3 graphic presentation of the spatial characteristics of the University-City model

fig 3.3

3.1.4 Conclusion

The focus shifts from what happens only on campus to include what happens in its immediate environment. Tadmor (2003:22) holds that the university "will become a science-technology city with the university at its core, surrounded by a large array of buffer institutions, industrial parks, technological incubators, science related cultural activities, science orientated youth camps, and international meeting places". With this notion of spatial layout in mind, the university should shift its focus outside of its own boundaries and start looking at how the city can be beneficial to the university and how the university might add to the city.

The University-City opens new horizons for future developments and ideas with greater flexibility. The community of the university is the community of the city and thus not a discrete community, but a variety of communities, each fulfilling, in some way, the classical tasks of the university. It is the ultimate embodiment of the emerging knowledge society, emphasising both the democratisation of knowledge and its central role. It can provide varying spatial situations and balanced integration of green areas. Many parallel diverse systems will exist simultaneously, fulfilling the classical tasks of the traditional university (Haina, et al. 206:16).

I have analysed the influence of social, cultural, economic, and technological changes over time on the structure of the university and have discussed the implications of these changes for the design of the future university. However, this integration with the city in the current political environment brings the question of safety and security on campus and whether there are ways to keep it safe through urban design rather than with palisades.

3.2 Safety in Urban Design

Campus safety and security has always been a high priority for the University of Pretoria, which is the motivation for all the palisade fences. It raises the questions of whether there are better solutions to the problem and if there is a connection between safety and urban design. Because an integral part of the project's goal is public access to dedicated areas of campus, the need exists to investigate the broader relationship between urban design and social behaviour and whether it could provide a healthier alternative to the 'iron curtain'.

Since we are not criminologists, nor sociologists, I will not claim expertise in those domains and will conduct my investigation from an urban design point of view. I will briefly explore the relations between urban form and urban safety in general and then pose some questions on how dominant forms of the urban development are transforming this relationship and how these ideas could be implemented on the UP campus.

3.2.1 Behaviour v/s Urban Form

It is now widely accepted that there is a strong relationship between the design of urban spaces and all forms of public behaviour, crime and violence among them (Dovey, 1998:2). However, there is rather less agreement about the nature of this relationship or the degree to which urban form determines behaviour.

The idea that good buildings could produce a good society has haunted architectural practice ever since Le Corbusier proclaimed architecture as the liberating alternative to social revolution (Dovey, 1998:2). While the dreams of liberation through architecture are very much alive, I would suggest that the physical environment cannot cause behaviour, but it does seem to have an effect on it.

The sociologist Anthony Giddens (1984:230) argues that built form structures social behaviour through a combination of enabling and constraining. He states: "at the most banal level, a wall constrains movement and enables privacy, but it does not cause any kind of behaviour." Therefore, built form can prevent things from happening in a given place, or it can enable them to happen, but it cannot determine anything. "Through architectural form of the structure, one can channel the movement of people through purposeful routes of movement and points of pause, influencing the nature of the users' responses" (Bacon, 1957:50).

Crime and violence are social practices, based within social relations which are mediated by urban form. Controls over land-use, the design of urban space and public access can indeed contribute to safety and danger in the city. While urban form mediates a certain distribution of crime and violence, the deployment of urban design as a means of 'designing out crime' is highly problematic, even though design interventions may re-distribute such practices and may do so with positive effects.

3.2.2 Enclosure v/s Encounter

Ways in which urban form mediates safety and danger is firstly, the ancient response to put either walls or distance between ourselves and what we perceive as a threat. In the burgeoning industrial city of the 19th century, public space was regarded as both masculine and dangerous, "a labyrinth of places of crime and danger from which women and children should be excluded" (Wilson 1991:34). This was the first phase of retreat to the suburbs as a safe place for family life. The dangers of the city were dealt with by an anti-urban impulse, which is the attitude to safety in urban space and the 'ideal' of a retreat from it that we are still dealing with today.

In the book 'Defensible Space', Oscar Newman (1972:65) focussed on the considerable incidence of crime in the newly created inner-city public housing estates where a kind of 'no-man's-land' emerged between the street and the front door. Newman's claim was that such crime could be prevented through designs which encourage a sense of control or responsibility over such space.

This has tended to lead to the enclosure of such zones, wherein strangers would be recognised, as was done with the university campus. However, Newman was severely criticised for his methods, as danger in public space is still dealt with by separating oneself from that which is strange or different, just as with the retreat to the suburbs.

A second opinion on how safety and danger can be mediated by urban design, that is in contrast to this tendency of retreat and enclosure, is the work of Jane Jacobs in 'The Death and Life of Great American Cities' (1961). This was also a critique on modernist planning but it was a broader criticism of the ideology which divided the city into zones according to function, destroying the vitality and diversity of streetlife and its informal modes of social control. Jacobs argued for a mixing of functions which would maintain activity on the street at different times of the day and week (Jacobs, 1961:67).

fig 3.4

There are many aspects to this argument, but the view on safety is that the volume of streetlife and a relation of buildings to the street which maintained 'passive surveillance' or 'eyes on the street' (Jacobs, 1961:60) is a highly effective control of anti-social behaviour. She states that "public peace of cities is not kept by police but is kept primarily by an intricate, almost unconscious, network of voluntary controls and standards among the people themselves" (Jacobs, 1961:41).

In this idea of passive surveillance there was some overlap between Jacobs and Newman, but the major difference was the encouragement of - even the reliance on - the encounter with strangers. Jacobs recognised urban vitality as dependent on a highly permeable urban structure with short blocks and multiple connections (Jacobs, 1965:193); which is the structural opposite of enclosure.

The more recent work of Bill Hillier (1984) on 'spatial syntax' leads in a similar direction: a "*ringy*" urban spatial structure which encourages strangers but controls them by being near dwellings. The argument with regards to safety is that "strangers police the space, while inhabitants police the strangers" (Hillier & Hanson, 1984:18). One is not protected from contact with strangers; indeed such contact is seen as protective.

A healthy street culture could be beneficial to safety, quality of campus life, as well as commercial gain for the UP. Roper Street could be activated as a generator of energy and positive interaction with the public.

fig 3.4 photo of Roosmaryn front door as seen from Roper Street

3.2.3 Safety v/s Diversity

Christopher Alexander's seminal paper entitled 'A City is not a Tree' (1996) is another attack on modernist planning although his concerns were for urban vitality rather than safety. The metaphor of the tree is linked to the attempt to order the city hierarchically, and he argues that cities would be killed if they were treated like trees since they rely on high levels of connectivity and chance. This idea can be linked to the work of philosopher Gilles Deleuze (1985:136) who utilises the metaphor of the 'rhizome' for forms of life which move both horizontally and vertically, and in a fragmented or 'nomadic' rather than hierarchical manner.

The most creative corporations, communities, institutions and urban life are rhizomatic. Regardless of attempts to impose order on urban life, good cities have a capacity to enable diverse forms of life to shoot and take root, to migrate and sprout again. But crime and violence are also rhizomatic, as are the many informal practices of maintaining urban safety. Which raises the question: how can a city be rendered safe without the kind of totalitarian control that also kills off the diversity, vitality and creativity of urban life?

Jane Jacobs believes that diversity is essential to a safe and lively city and that diversity in cities is both healthy and economically uplifting. She gives three main qualities that city streets must have in order to make a safety asset out of the presence of strangers:

"*First, there must be a clear demarcation between what is public and what is private space. Second, there must be eyes upon the street belonging to the natural proprietors of the street. And third, the sidewalk must have users on it fairly continuously*".   (Jacobs, 1961:44-45)

But for this natural energy to be harvested, one needs a healthy mix and interaction of people of all kinds. A university campus should not be regarded in isolation, but should rather be seen as part of a greater whole, as a key component of a contiguous community.

I believe that students would benefit greatly from the experience of mingling more with the public. It would also benefit the University in that the public could keep the university grounds alive, and therefore safe, during the recess periods when students are absent, while still providing the commercial facilities on campus with a steady income.

One might argue the need for diverse interaction in city life, but I believe it is crucial for optimal individual development and personal growth as well. Likewise, Richard Sennet (1996:24) believes that the unstructured face to face encounter with strangers and confrontation of difference is necessary to civilised human development.

"*The somewhat anarchic diversity of functions, people and activities is what enables the development of culture, art and identity. We discover and construct who we are in the encounter and contrast with what is 'other' to our given identity. By contrast the fear of and retreat from difference leads to a stunting of identity and to a retreat to purified ideals of a closed community*".   (Sennet, 1996:25)

Jacobs (1961:93) also substantiates this notion and states "in real life, only from the ordinary adults of the city sidewalks do children learn the first fundamentals of successful city life". She also adds "the whole idea of doing away with city streets and downgrading and minimizing their social and economic part in city life is the most mischievous and destructive idea in orthodox city planning" (Jacobs, 1961:98).

3.2.4 Conclusion

Two kinds of mediation of safety and danger in urban space which can be loosely characterised as the 'enclosure' model and 'encounter' model have been discussed. This raises the question of what we are to make of this in terms of current urban development and more specifically urban design implemented on the UP campus.

In my view, while both retreat and enclosure can be appropriate measures for particular situations, the encounter model provides a far more sophisticated strategy for promoting urban safety. It is the only model which is truly sustainable, urban, civil and civilised as opposed to the absurd idea that it is 'civilised' to retreat from 'civic' space.

Safety and security are paramount considerations within the concept of private enclosure, but the broader effects on the safety and security of the public realm are highly problematic. The enclosure model is a form of urban development which redistributes public danger in a manner that diminishes our collective willingness and capacity to deal with it.

This redistribution also occurs within public space where urban design moves the signs of social division and failure into invisible locations. Surveillance cameras, outdoor sprinklers and so called 'bum-proof' benches can be used to marshal the homeless or unwanted into spaces where they will not be noticed. Fences and cameras can be used to shift injecting drug users into someone else's toilet, alley or suburb. But since urban form does not cause homelessness, social division or drug use, it cannot be eradicated by moving it around.

One test of a good city lies in whether it allows us to walk the streets in safety; day or night, rich or poor, male or female, black or white, old or young. But another test lies in the capacity for all its citizens to gain access to the overwhelming vitality and diversity of urban life. The task is not to choose between, but rather to reconcile these imperatives. To understand, manage and engage with safety and danger in a creative and civilised manner.

Therefore, a need exists for varying levels of contact - from privacy to public interaction - to stimulate a healthy campus life. The proposed site will form a transition space and the building itself will be designed to form a gateway, creating a definite awareness of crossing from public into semi-private space with effective surveillance, both active and passive, which could serve to limit crime and violence. The objective is to create a vibrant and active street culture in Roper Street which would enhance and enrich the atmosphere on the university campus.

fig 3.5

fig 3.5 sketch illustrating natural surveillance
         achieved through active frontages close to
         the street edge

fig 3.6 sketch illustrating natural territorial
         reinforcement

3.3 Safety Principles

Crime Prevention Through Environmental Design (CPTED) is a multi-disciplinary approach to deterring criminal behaviour where the strategies rely on the ability to influence offender decisions that precede criminal acts (Crowe, 2000:7). According to Jeffrey (1977:23), research into criminal behaviour shows that the decision to offend or not is more influenced by cues to perceived risk of being caught than by cues to reward or ease of entry. CPTED based strategies emphasise enhancing the perceived risk of detection and apprehension.

Consistent with the widespread implementation of defensible space, these guidelines are based solely on the theory that appropriate design and effective use of the built environment can reduce crime, reduce the fear of crime, and improve quality of life. The three most common

built environment strategies according to Luedtke (1970) are natural surveillance, natural access control and natural territorial reinforcement.

3.3.1 Surveillance & Visibility

Natural surveillance increases the threat of apprehension by taking steps to increase the perception of being seen. It occurs by designing the placement of physical features, activities and people in such a way as to maximise visibility and foster positive social interaction among legitimate users of public and private space (Luedtke, 1970:14).

• Place windows to overlook sidewalks and parking lots.

• Create landscape designs that provide surveillance, especially in proximity to designated points of entry.

• Use passing vehicular traffic as a surveillance asset.

• Use the shortest, least sight-limiting fence appropriate for the situation.

• Ensure that potential problem areas are well-lit and avoid poorly placed lights that create blind-spots.

• Avoid security lighting that is too bright as it creates blinding glare and/or deep shadows.

• Place lighting along pathways and other pedestrian areas at proper heights for lighting the faces of people.

Natural surveillance measures can be complemented by mechanical and organisational measures, for example closed-circuit television (CCTV) cameras.

fig 3.6

3.3.2 Natural Access Control

Natural access control limits the opportunity for crime by taking steps to clearly differentiate between public space and private space and by selectively placing entrances and exits, fencing, lighting and landscape to limit access or control flow (Luedtke, 1970:17).

- Use a single, clearly identifiable point of entry

- Use structures to divert persons to reception areas

- Incorporate maze entrances to public restrooms, to avoid the isolation that is produced by an anteroom or double door system.

- Use low, thorny bushes beneath ground level windows.

- Eliminate design features that provide access to roofs or upper levels.

Natural access control is used to complement mechanical and operational access control measures, such as target hardening.

3.3.3 Natural Territorial Reinforcement

Territorial reinforcement promotes social control through increased definition of space and improved proprietary concern. An environment designed to clearly delineate private space does two things. First, it creates a sense of ownership, owners have a vested interest and are more likely to challenge intruders or report them to the police. Secondly, the sense of owned space creates an environment where 'strangers' or 'intruders' stand out and are more easily identified. By using buildings, fences, pavement, signs, lighting, landscape to express ownership and define public, semi-public and private space, natural territorial reinforcement occurs (Luedtke, 1970:19).

- Maintain premises and landscaping so that it communicates an alert and active presence occupying the space.

- Provide trees.

- Restrict private activities to defined private areas.

- Display security system signage at access points.

- Avoid cyclone fencing and razor-wire fence topping, as it communicates the absence of a physical presence.

- Placing amenities such as seating or refreshments in common areas in a commercial or institutional setting helps to attract larger numbers of desired users.

- Scheduling activities in common areas increase proper use, attracts more people and increases the perception that these areas are controlled.

Territorial reinforcement measures make the normal user feel safe and make the potential offender aware of a substantial risk of apprehension or scrutiny.

3.3.4 Conclusion

With the implementation of these strategies, Roper Street can be designed and controlled effectively, maintaining a healthy, diverse and active environment for all users, from school children to students, and general public alike. CPTED strategies are most successful when they inconvenience the legitimate user the least and when the design process is the result of the combined efforts of environmental designers, land managers, community activists and law enforcement professionals.