“In my view, a lot of our young people see the world in terms of the three ‘e’s: ease, enjoyment, earnings. Those ideas have gained the upper hand with a lot of people. The problem with that is that you can never get enough. I would be very wary about ventilating that modern sense of life of the three ‘e’s in a school building. As a school, we want to propose the alternative of the three ‘r’s: reliance, relation, responsibility. Those concepts ensure that you enter into a relation with the school, and that makes you feel better”.

Biet Boekhoud
Verstegen (2009: 14)

“ If you want to become a baker, then you have to train at school in surroundings like a bakery. Walk around all day in a baker’s clothes if necessary. You have to act your part. You have to start thinking on the basis of that profession. We’ve already designed that for the nursing course. We’ve kitted up a pharmacy and the classrooms look like hospital wards”.

Biet Boekhoud
Verstegen (2009: 15)

“In a traditional classroom all the pupils must be able to see and hear the teacher equally well. At the same time the teacher can see all the pupils and is in control. A room like that takes on the significance of surveillance and control. The result is that if the teacher turns around or leaves the room, someone gets up on a chair to attract negative attention. If you opt for a larger room with pupils and more than one teacher, one of them may still get up on a chair, but it has much less effect. Besides, there are always more teachers present to intervene if necessary.

Gert Jan Meijer
Verstegen (2009: 72)

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fig.4.1. View of urban context from DANSA International College classroom window

Chapter 4

Concept

Conceptual Statement

Education is everywhere, in everything and in everyone. It is perceived by all the senses; vision, hearing, smell, taste, touch, and emotional condition. Educational environments should embrace this interactive quality that it offers. Urban educational environments offer unique opportunities that sub urban ones can't. The uniqueness of any urban context and the integrated nature thereof means that it need not be perceived as exclusive environments, like the vast open lots in suburbia, but rather ones that are inclusive, delicately woven into the urban fabric, and part of the everyday life of urban dwellers. The public should be part of the educational process, either actively or passively. The educational environment should not aim at establishing idealistic situations, but rather present the world/real life, as it presently is, ever changing, integrated, and interactive. Educational environments should provide the required infrastructure that facilitates this pedagogical process. Architecture enables the creation of such environments.

Horizontal to Vertical

Traditional schools are generally horizontally orientated, located on great open stands and mostly restricted to three storeys high. The challenge that an urban educational facility has to face is that the comparatively small stands and existing buildings are vertically orientated amidst general dense urban conditions.

This challenge requires a new approach to facilitate and arrange the required educational spaces in a vertical manner. This approach has the ability to in fact redefine the way in which educational environments are perceived of.

Functions that are traditionally located on ground floor areas will have to adapt to this vertical condition. Multipurpose halls and recreational facilities will potentially be located on the upper levels. Classrooms that are traditionally located next to each other will have to be stacked on top of each other. Open, outdoor socializing spaces will have to be integrated with indoor socializing spaces. Minimum vertical circulation in traditional schools, now become the predominant circulation route.

The above-mentioned challenges are but a few that will be facing the design of a vertically orientated educational institution. How will this new arrangement affect the educational process and outcomes? How will this process be integrated with the context? How will an existing building accommodate this vertical challenge?

The answers to the posed questions will potentially lead to new perceptions regarding the roles which educational facilities fulfills in future urban environments.

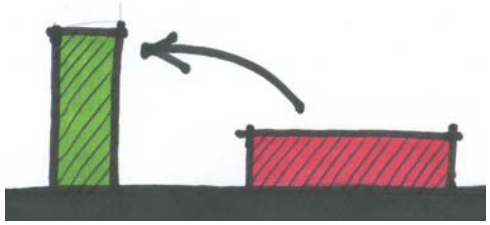

fig.4.2. From 'horizontal' to 'vertical' education

Urban Context

fig.4.3. DANSA International College, within a typical urban context

The traditional school in South Africa is generally located in the sub-urban areas that surround a city centre (fig.4.4). This is the case in Pretoria too. However, as this document has shown, numerous schools have recently been established in the inner city of Pretoria.

These schools are typically located in dense urban environments (fig.4.3). The result is that the educational environments referred to are not surrounded by low-density residential property, public parks, natural vegetation or any form of natural landscape. In stead they are located amidst a complex mix of various buildings typologies, varying in height, density and function. Surely the context must have an influence on the physical environment in which education is provided? Surely an urban context must provide alternative challenges in terms of management that the sub-urban ones don't? Surely this urban context has the potential to positively influence the educational process?

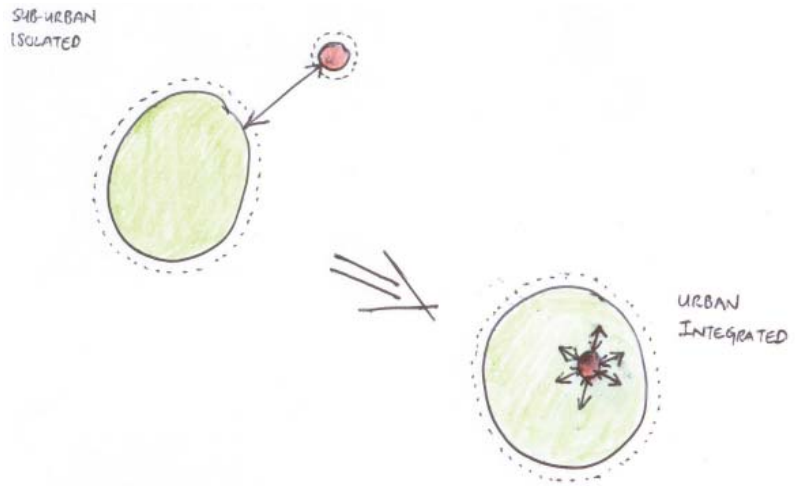

fig.4.4. Suburban vs Urban Context

fig.4.5. Open Air schooling

fig.4.6. Traditional classroom (Menlo Park High School)

Transparent Process

The Educational process generally takes places within an environment that is separated from the public's view (fig.4.6). This has been done for safety, as well as pedagogical reasons. The result is that a clear separation, not only physically, but also mentally is created between the 'real' world, and that of the educational space. Students are thus educated in isolated environments that prepare them for integrated, interactive, and mixed-use environments. Could there be a way to make the educational process more transparent for not only the students being educated, observing and applying their studies in real time, but also for the public to experience 'real time' education and becoming either actively, or passively involved there-in? (fig.4.7). Is a mutual relationship between the two realms indeed possible? Open Air schooling is an example where the educational process has been integrated with the 'real world' environment (fig.4.5).

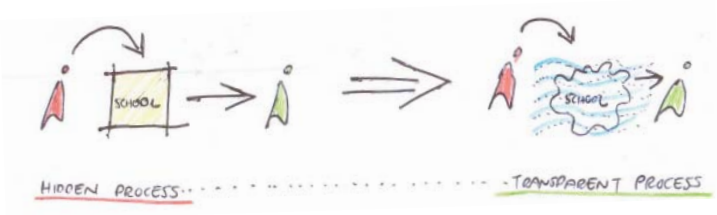

fig.4.7. Diagram indicating how the educational process should become transparent for the students, as well as general public

‘Real life’ vs Education

The traditional notion of education is thus clearly aimed at establishing a separation between ‘real life’ and the educational space (fig.4.8). The result is that the student will have to make a transition from the educational realm into the ‘real life’ realm at some stage in his/her life. This critical transitional point is generally where a lot of students have difficulties adapting to their ‘new’ environment or circumstances (fig.4.8). Independent behavior is suddenly required from the student stepping into the ‘real world’. Students now have to apply all of their gained knowledge without the necessary guidance or supervision, not within a classroom, but within the ‘real life’ environment. This is a process that takes time to adapt to and thus the general separation between education and the working environment. Do the two realms have the potential of crossings each other’s paths? Will the students benefit from seeing and experiencing their actions in relation to the public and learning from the results thereof?

I am of the opinion that the educational process and ‘real life’ should become one that is all the more integrated (fig.4.9). There should in fact be no single transition point. The process should become blurred and not necessarily reach an end. Active and passive involvement within the educational process by the public and the students could ensure a continuous process of education that benefits both ends of the spectrum.

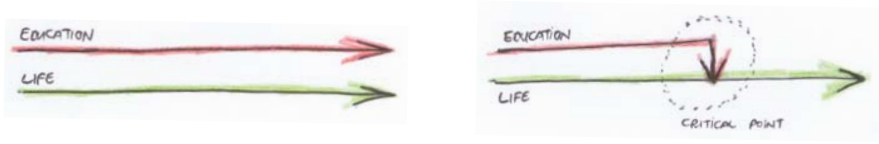

fig.4.8. Diagram indicating how the traditional education process reach a critical point where ‘real life’ and education meets.

fig.4.9. Diagram indicating how the educational process and ‘real life’ becomes integrated and not necessarily ever reach a critical point

fig.4.10. Various alterations are visible on the facade of Berea Park School. The structure was originally used for warehousing purposes.

Adaptive Re-Use

Traditional education institutions are located within purpose built structures (fig.4.12). These structures are either designed to facilitate a specific pedagogic model, or designed to be flexible and adapt to contemporary educational trends.

The current trend of establishing educational institutions within the inner city of Pretoria faces a different challenge in this regard. Open land is scarce within the city, and in most cases the educational institutions can’t afford to purchase these open stands. They are thus mostly left with the alternative of renting a vacant or under utilized structure. This proves to be a big stumbling block for the various educational institutions, as alterations to the structure, in order to facilitate exceptional education spaces, are largely dependent on the owner of the building (fig.4.10).

The challenge thus lies in the ability of the designer to utilize the available context, physical structure, resources, and finances most efficiently in order to create the optimum educational environment within the limits of the project scope (fig.4.11). A creative adaptive re-use process is thus required in order to facilitate the occupancy of existing buildings by educational institutions.

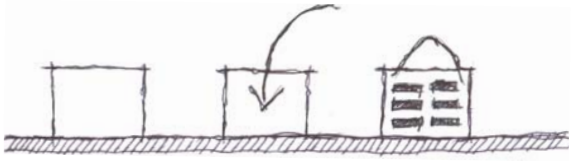

fig.4.11. Diagram indicating how an adaptive re-use scenario is established by applying a new use to an existing building

fig.4.12. Purpose built educational structure (Menlo Park High School)

Supportive Functions

Traditional educational facilities generally consist of a variety of spaces that are directly aimed at the educational process. It is quite rare to find an educational supportive function within an educational facility that is indirectly involved in the educational process (fig.4.13). These supportive functions have the ability of providing the required resources required to establish an exceptional educational environment. Not only is a mutual relationship established, but also accessibility to resources and information is improved.

fig.4.13. Typical example of an educational supportive function (PostNet)

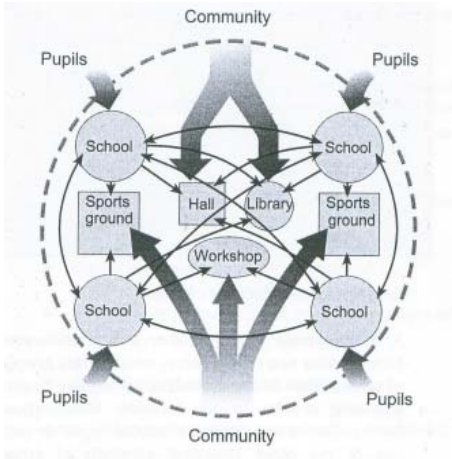

fig.4.15. Relationships between public facilities (CSIR: 2009)

Multi-Functionality

The multi-functional use of educational environments adds value to the facility. Educational facilities in fact have the potential of being utilized for a number of public functions. Various schooling facilities within the inner city are being used for adult education after hours and religious purposes over weekends (fig.4.14).

fig.4.14. After hour educational activities (Princefield Trust School)

The CSIR (2009) released a document containing a table showing a compatibility matrix that attempts to identify the degree of compatibility between various public facilities when related to one another. The degrees of compatibility are defined below and indicated in fig.4.17.

- Compatible: There are interrelationships or linkages between the facilities and they can be located close to, or clustered with, one another.
- Neutral: There are no obvious linkages or interrelationships between facilities; their location together would have no benefits or disadvantages.
- Incompatible: The facilities are unsuitable to be located in close proximity or adjoining one another, as their uses are contradictory.

The CSIR (2009) states that complex and intricate patterns and relationships exist between various public facilities. An example of relationships and interrelationships between various public facilities is given in fig.4.15.

The relationships depicted in the example refer to:

- individual facilities (e.g. individual school buildings with their own individual playing or exercise areas); and

- shared facilities, including specialized facilities (e.g. main hall, main library), and sport facilities (e.g. swimming pools, tennis courts).

The CSIR (2009) states that the shared facilities will not exclusively serve the schools but also be accessible to the public. It is these interrelationships that present the opportunity for the clustering of facilities. Essentially there are two types of facility clusters: Multi-Purpose facility clusters and Functional clusters.

Multi-purpose facility clusters

The CSIR (2009) defines a multi-purpose facility cluster as being a multi-faceted facility under one roof or more, which offers a range of services such as social services, recreation, health, economic activity, in one location. They state that multi-purpose facility clusters are generally located together with one or the other structural elements of urban settlements (at a transport stop/interchange, urban square, market, sports field, etc). They continue and state that the multi-purpose facility cluster concept provides for flexible grouping of facilities at an accessible location.

The CSIR (2009) lists the advantages of establishing multipurpose facility clusters as indicated below:

- convenience, as all services are located in one centre and people can accomplish a number of tasks within a single journey, which equates to savings in terms of money, time and effort and has the net effect of improving quality of life;
- a reduction in the cost of providing public facilities through the sharing of resources, equipment and land;
- exposure for public facilities and encouragement of their use;
- integration of different communities;
- a reduction of inequalities in the provision of facilities;
- the provision of greater security; and
- the offsetting of transport costs.

Functional clusters

Another concept which the CSIR (2009) claims is becoming increasingly popular in terms of public facility provision is the creation of functional clusters of facilities (fig.4.16).

The CSIR (2009) states that current thinking proposes to externalize the provision of educational facilities from within local areas and cluster them around a hub of shared specialized facilities. They explain that in terms of this concept a number of educational buildings are loosely clustered together with residential and commercial facilities, around a hub of specialized facilities. The hub is easily accessible in terms of public transport. The specialized hub is a communal facility that can be used by the entire community. The school playgrounds and the fields are shared among the schools and are also available for use by the community after hours and on weekends.

The CSIR (2009) continues and state that individual schools within the education cluster can be enclosed separately if so desired, but the shared facilities should be easily accessible to the public and should be integrated into the built environment. They state that these shared facilities need not be physically attached to individual schools but should always be easily accessible - not more than a few minutes' walk.

The advantages of clustering functional facilities are summarized as follows:

- convenience, as all services are located in one centre;
- the sharing of high-cost elements can reduce costs considerably (e.g. specialized facilities like laboratories and space-extensive facilities like libraries);
- exposure for public facilities and the encouragement of their use;
- the integration of different communities;
- a reduction in inequalities in the provision of facilities;
- the offsetting of transport costs;
- a cutting down on the amount of land required;
- the promotion of full use of buildings;
- lower building costs;
- lower running costs;
- minimum maintenance costs;
- a large catchment area, less susceptible to localized demographic changes

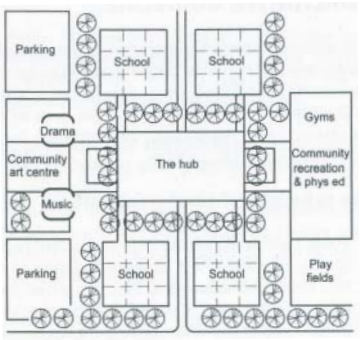

fig.4.16. An example of an Educational facility cluster (CSIR: 2009)

	Educational Facilities	Creche/Nursery School	Primary School	Secondary School	Tertiary facilities	Adult learning centres	Health Facilities	Mobile clinics	Clinics	Hospitals	Recreation Facilities	Playgrounds	Sports fields	Sports clubs	Sport stadiums	Cultural Facilities	Libraries	Community centres	Religious centres	Cemetaries	Administrative Facilities	Magistrates court	Municipal offices	Post offices	Police stations	Fire stations	Old age home	Children's home	Information centres	
Educational Facilities																														
Creche/Nursery School									o				o	o	X					X		X	X	X	X	X		o		
Primary School					o					o					o				o	X		X	X	X	X	X	X	X	o		
Secondary School					o					o					o				o	X		X	X	X	X	X	X	X	o		
Teriary facilities								o				o	o	o			o	o	o	X		X	X	X	X	X	X	X	o		
Adult learning centres								o	o	o			o	o	X				o	X		X	X	X	X	X	X	X	o		
Health Facilities																														
Mobile clinics										o		o	o	o	X		o	o	o	X		X	o	X	X	X			o		
Clinics													o	o	X		o	o	o	o		X	X	X	X	X	o	o	o		
Hospitals												o	o	o	X		o	o	o	o		X	X	X	X	X	o	o	X		
Recreation Facilities																														
Playgrounds															o					X		o	o	o	o	o	o				
Sports fields															o		o		o	X		X	X	X	X	X	o		o		
Sports clubs															o		o		o	X		X	X	X	X	X	o	o	o		
Sports stadiums																	X	X	X	X		X	X	X	X	X	X	X	X		
Cultural Facilities																														
Libraries																			o	X		o		o	X	X					
Community centres																				X		X	X	X	X	X	o	o			
Religious centres																				o		X	X	X	X	X	o	o	o		
Cemetaries																						X	X	X	X	X	X	X	X		
Administrative Facilities																														
Magistrates court																								o		X	X	X	X	
Municipal offices																								o	o	o	X	X		
Post offices																									X	X	o	o		
Police station																										o	X	X	X	
Fire station			Compatible																								X	X	X	
Old age home		o	Neutral																									X	o	
Children's home		X	Incompatible																										o	
Children's home																														

fig.4.17. Compatibility Matrix (CSIR: 2009)