21st Century
Tertiary Design Education
In
Post-*Apartheid* South Africa:
A Question of Quality

By

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Declaration:

This work has not been previously submitted in whole, or in part, for the award of any degree.

It is my own work.

Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

Signed by candidate

Date: 5 September 2007

Abstract

The dissertation explores the question of; what drives excellence in tertiary design education in 21st Century post-*Apartheid* South Africa? Is it what the state does in terms of policy and regulation or is it what the higher educational providers do in terms of curriculum and methodology that creates excellence?

In the first part the dissertation traces the development of higher education policy in South Africa following the political changes from *Apartheid* to Democracy after 1994. It explores the development of a regulatory framework for higher education provision in post-*Apartheid* South Africa, due to the disparate levels of quality higher education developed under the *Apartheid* system for different racial groups and also the proliferation of poor quality private higher education during the first decade of democracy. It follows the view that while the state set the regulatory control for higher education and bench marked educational excellence against public institutions, the realisation that market demands for access to quality higher education would require private education provision to form part of the institutional mix was soon reached.

In the second part of the dissertation a case study of a newly established private higher education provider is developed. Created within the new regulatory framework for higher education in South Africa, FEDISA (Future Excellence Design Institute of South Africa) of which this author is the academic director, endeavours to show that private providers of higher education can, when pursuing excellence, become viable

partners to the state in education provision and may even surpass the state institutions, now burdened with massification, in terms of quality education provision. The study goes on to develop an understanding of how changes in the economic markets have created change demand within design. It then considers the four tenets on which FEDISA's programme for achieving excellence is based in order to comply academically with the highest quality of 21st Century design education. This is as much in answer to the requirements of the new regulatory framework as to the institution's own analysis of what the market now wants.

These tenets include the concept of what a curriculum is, drawing on Stenhouse and Smith's views of the curriculum as 'a blueprint for action'. Next, the importance of integrating the component elements of the design curriculum by drawing parallels between the 'collection type and integrated curriculum' theory of Bernstein is considered. In the third instance, an analysis of 'Knowing, Acting and Being', after the curriculum theory of Barnett and Coates is developed through the addition of a liberal arts component to the design curriculum. Special focus is afforded the importance of 'Being' development of design students in 21st Century design education. Finally, Brookfield's notion of becoming a critically reflective practitioner and how the concept of critical reflection has found its place in the 21st Century design classroom through the use of the 'tools of critical reflection' is brought into focus.

The dissertation concludes that while the shift in the design markets from craft through mass production to an understanding of ethical considerations in new

millennium design dictates what kind of design professionals should now be educated and that this awareness may be achieved through the refocusing of inherently simple means inside the design classroom of the 21st Century, excellence in tertiary design education, while primarily based on what happens inside our design institutions, goes hand in hand with compliance to the demands of state regulation in order to ensure the viability of our tertiary institutions.

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PART ONE:

1. Introduction

This dissertation follows the regime change in South Africa in 1994 and considers the implication thereof for higher education in the country. In the new government's struggle to address the inequalities of the past, the Reconstruction and Development Programme (1994) of the African National Congress gave rise to numerous changes in the educational landscape of post-*Apartheid* South Africa. It traces the need for the development of a regulatory framework for higher education provision in South Africa in order to facilitate a single equitable, well co-ordinated and responsive system of higher education. It explores the development of a regulatory framework for higher education provision in South Africa, due to the disparate levels of quality higher education developed under the *Apartheid* system for different racial groups and also the proliferation of poor quality private higher education during the first decade of democracy. As stated in section 3.1.1 of the Reconstruction and Development Programme;

> "Education and training under apartheid is characterised by three key features. First, the system is fragmented along racial and ethnic lines, and is saturated with the racist and sexist ideology and educational doctrines of apartheid. Second, there is a lack of access or unequal access to education and training at all levels of the system. Vast disparities exist between black and white provision and large numbers of people - in particular, adults (and more especially women), out-of-school youth, and children of pre-school age - have little or no access to education and training. Third, there is a lack of democratic control within the education and training system. Students, teachers, parents and workers are excluded from decision-making processes."
>
> (RDP, 1994)

It follows the view that while the state set the regulatory control for higher education and bench marked educational excellence against public institutions, the realisation that market demands for access to quality higher education would require private education provision to form part of the institutional mix was soon reached.

In the second part of the dissertation a case study of a newly established private higher education provider is developed. Created within the new regulatory framework for higher education in South Africa, FEDISA (Future Excellence Design Institute of South Africa) of which this author is the academic director, endeavours to show that private providers of higher education can, when pursuing excellence, become viable partners to the state in education provision and may even surpass the state institutions, now burdened with massification, in terms of quality education provision. The study goes on to develop an understanding of how changes in the economic markets have created change demand within design. It then considers the four tenets on which this institution's programme for achieving excellence is based in order to comply academically with the highest quality of 21st Century design education in answer to the requirements of the new regulatory framework and the institution's own mission statement.

These tenets include the concept of what a curriculum is, drawing on Stenhouse (1975) and Smith's (1996) views of the curriculum as 'a blueprint for action'. Next, the importance of integrating the component elements of the design curriculum by drawing parallels between the 'collection type and integrated curriculum' theory of Bernstein (1975) is considered. In the third instance, an analysis of 'Knowing, Acting and Being', after the curriculum theory of Barnett and Coates (2005) is developed through the addition of a liberal arts component to the design curriculum. Special focus is afforded the importance of 'Being' development of design students in 21st Century design education. Finally, Brookfield's (1995) notion of becoming a critically reflective practitioner and how the concept of critical reflection has found its place in the 21st Century design classroom through the use of the 'tools of critical reflection' is brought into focus.

The dissertation concludes that while the shift in the design markets from craft through mass production to an understanding of ethical considerations in new millennium design dictates what kind of design professionals we should be educating now and that this awareness may be achieved through the refocusing of inherently simple means inside the design classroom of the 21st Century, excellence in tertiary

design education while primarily based on what happens inside our design institutions, goes hand in hand with compliance to the demands of state regulation in order to ensure the viability of our tertiary design institutions in terms of organisationally strong quality assurers.

2. Rethinking the Road to Higher Education in a Democratic South Africa

In South Africa the technikon system of vocational education which was established in the late 1960's also established design as one of the routes to follow in the up-skilling of the South African labour force in the second half of the 20th Century. While not regarded by the government of the day as universities, the technikons offered a route to higher education with a technical or practical focus. The technikon system, which was a further development of the Colleges of Advanced Technical Education (CATEs) was established by an act of parliament in 1967. As Cooper and Subotzky point out in The Skewed Revolution;

> "The evolution of the technikons is linked to the more advanced secondary, manufacturing industry of large-scale capitalism in a later phase after World War II."
>
> (Cooper & Subotzky, 2001: 5)

Design education was therefore seen by the Nationalist regime in *Apartheid* South Africa strictly in terms of preparing graduates for careers based on manual or practical activities. Even while the technikon system was considered to form part of higher education provision, it was traditionally non-academic and almost exclusively related to a specific trade, occupation or vocation with the student developing expertise in a particular group of techniques or technology.

With the advent of democracy in post-*Apartheid* South Africa in 1994, the new government of national unity, led by the African National Congress issued a policy directive known as the Reconstruction and Development Programme (RDP). While the RDP endeavoured to address the basic social development needs of the country, such as housing, land, health, education and services, it is on education and the need for quality assurance in higher education that we focus here. The RDP recognized in section 3.2.3 that;

> "Human resource development must address the development of human capabilities, abilities, knowledge and knowhow to meet the people's ever-growing needs for goods and services, to improve their standard of living and quality of life. It is a process in which the citizens of a nation acquire and develop the knowledge and skill necessary for occupational tasks and for other social, cultural, intellectual, and political roles that are part and parcel of a vibrant democratic society."
>
> (RDP, 1994)

In order for this human resource development to take place however a number of mechanisms would be required to ensure that the intent of the RDP could in fact be put viably into practice. To this end a constitutionally enshrined imperative for the development of a new higher education landscape within the country was established. A number of factors informed this new order of education. Among these was the desire for a single equitable, well co-ordinated and responsive system of higher education to address the socio-political and economic needs of the country. As the RDP goes on to state in section 3.3.1;

> "We must develop an integrated system of education and training that provides equal opportunities to all irrespective of race, colour, sex, class, language, age, religion, geographical location, political or other opinion. It must address the development of knowledge and skills that can be used to produce high-quality goods and services in such a way as to enable us to develop our cultures, our society and our economy."
>
> (RDP, 1994)

The National Commission on Higher Education (NCHE) also takes up this missive of quality education by pointing out that;

> "All the services and products of higher education should pursue and maintain the highest levels of quality."
>
> (NCHE, 1996: 4)

There is a realisation of the vastly disparate levels of education available to the citizenry of the country. In terms of public provision of higher education these varying levels of educational programmes may be attributed to the *Apartheid* state pre-dating democracy in South Africa, with its highly racially segregated system of higher

education. In terms of private providers the vastly disparate quality of educational offerings is evidenced by the lack of a hitherto undeveloped regulatory framework spanning the first ten years of democracy in South Africa. The NCHE regards this disparity in the following light;

> "... firstly, the profound deficiencies of the present system which inhibit its ability to meet the moral, social and economic demands of the new South Africa; and secondly, a context of unprecedented national and global opportunities and challenges. Together, these factors require reorientation and innovation."
>
> (NCHE, 1996: 1)

Before 1997, private higher education was seen by the public higher education institutions and the Department of Education as peripheral, unimportant and of low quality (Mabizela, 2004). A conclusion that was underpinned by the 2003 Council on Higher Education Report following the Higher Education Quality Committee's quality evaluation of 57 of the 117 private providers of higher education registered with the National Department of Education at the time. It was found that;

1. Most private providers had an uncertain correlation between programme offerings and labour market requirements.
2. 'Spoon-feeding' and rote learning dominated the approach to teaching and learning while independent study was not encouraged.
3. Teaching of uneven quality premised on poor staff capacity in terms of qualifications and industry and academic experience.
4. Zero or poor research performance and outputs among both students and academics.
5. Poor and insufficient industry co-operation and experiential learning interactions.
6. Poor infrastructure, especially in terms of libraries and information technology.

7. Poorly developed internal quality assurance mechanisms.

(CHE, 2003)

Not only was the pursuit of and desire for a regulatory framework for quality higher education therefore essential in establishing the credibility of education provision in the new democratic South Africa, but another factor was the new momentum and heightened impact of globalisation on many aspects of the South African economy and its newly emerging society. South Africa also became a target for both national and transnational providers of private higher education in light of the heightened demand for access to quality education within the newly democratised country.

3. The Resurgence of Private Higher Education in South Africa and the Need for a Regulatory Framework

While South Africa boasted 21 public universities and 15 technikons in 1994, the private provider sector in the country would grow to over 100 providers by 2004 including 4 transnational universities. The influx and expansion of education providers into a democratic South Africa required a regulatory framework within which quality education could be assured (Naidoo & Singh, 2005: 8). It is also important to note that this regulatory framework for higher education in post-*Apartheid* South Africa has its roots in a range of restructuring initiatives by the government to create a new policy platform for social provision in a number of areas, including education (ANC 1992; Badat 2004).

In the period leading up to democracy in South Africa, little or no oversight of higher education providers existed beyond the public education domain. It was therefore incumbent on government to ensure a regulatory framework within which quality education provision could be assured. By 2005, through a process of mergers and incorporations the South African public higher education system had been reshaped into 15 universities and six universities of technology (formerly known as technikons) which offered primarily vocational programmes with a limited theoretical base. (It is interesting to note that just as the change from CATEs to technikons in the late 1960's had been essentially only a change in name, so the change from technikons to universities of technology in 2005 in South Africa was again essentially in name only). Similarly the pressures of compliance with the requirements of the Higher Education Quality Committee (HEQC) would trigger a spate of mergers and rationalisations within the private provider sector of higher education in an attempt to streamline their programmes and ensure a greater educational quality foundation.

> "The process of rationalisation in private higher education has also included a clearer delineation between programmes in further education and those offered at higher education levels..."
>
> (Naidoo & Singh, 2005: 5)

This statement by Prem Naidoo and Mala Singh indicates that there existed an unclear distinction between the various levels of educational programmes being offered by the private provider sector before the introduction of a regulatory framework. Higher education was distinguished primarily by virtue of being public or private and many offerings did not live up to the requirements or expectations of higher education level programmes, but consisted rather of skills development programmes devoid of the intense theoretical and analytical components associated with higher education studies according to the CHE report of 2003.

Reviewing various policy and legislative documents it is evident that the South African government is strongly pursuing educational quality, especially with regard to higher education. And while the introduction of a new regulatory framework for higher education may have presented a number of compliance challenges for providers, this pursuit of excellence should not be seen to be at the expense of the private provider sector. In fact it is clear simply by review of the South African constitution that government views the private provider sector as a partner in expanding the rights and opportunities of the new fledgling democratic society in terms of educational development. As an example, the Bill of Rights in chapter two of the South African Constitution (1996) specifies the following right in respect of private provision;

> "Education
>
> 29 (3) Everyone has the right to establish and maintain, at their own expense, independent educational institutions that –
>
> (a) Do not discriminate on the basis of race
>
> (b) Are registered with the state
>
> (c) Maintain standards that are not inferior to standards at comparable public educational institutions."
>
> (Government Gazette, No 17678: 1996)

While the right to the establishment of private education provision is constitutionally protected, it comes with the responsibility of quality assurance and the maintenance of standards. These standards must be comparable with standards maintained at similar public institutions, thereby offering protection against the continuation of an inferior educational system. The RDP points out in section 3.3.4 that;

> "The democratic government has the ultimate responsibility for ensuring that our human resources are developed to the full. Education, training and development opportunities must be provided in accordance with national standards. However, civil society must be encouraged to play an active part in the provision of learning opportunities as part of the national human resources development strategy."
>
> (RDP, 1994)

This, however, remains a contentious view, which seeks to perpetuate the perception of the superiority of public education over that which is provided by the private sector. It appears that the state is assuming a superiority of standards based on historically perceived ideas of what higher education represents rather than allowing the market forces at play within the private provider sector to set the standards of excellence. It is certainly even more contentious in regard of many niche market areas, especially in the highly specialised fields of design education as is pointed out in part two of this dissertation.

Another indicator to the important role of private higher education providers in the post-*Apartheid* South African education landscape was the establishment in 1995 of the NCHE. Established to advise government on restructuring higher education in South Africa the NCHE recommended a 30% national participation rate by 2005 (NCHE 1996: 100). It is evident that based on the existent capacity of the public higher education institutions that this figure included enrolments in private higher education institutions. This reflects government's desire to develop a productive partnership between public and private provision of higher education. It also negates the view that the introduction of a regulatory framework was to act as a punitive measure against the private provider sector. The realisation of the growing pressures on the national budgets due to the increasing demand for access to higher education

obviated the South African department of education to pursue a programme of quality higher education across all sectors of provision in order to purposefully satisfy this growing demand.

Another aspect high-lighted by the Commission was the desire for a single co-ordinated higher education system;

> "...this mechanism is essential to tackle differences in quality across institutional programmes, is an important element of the *new form of governance* proposed for higher education and should be one of the ways of drawing private higher education into the new system."
>
> (NCHE, 1996: 108 emphasis added)

This new form of governance to which the NCHE is referring here was already heralded by the RDP in 1994, which states is section 3.3.5.1 that higher education will fall under the authority of;

> "a single national ministry responsible for education and training, to set national policies, norms and standards throughout the system, to undertake planning and provide budgetary resources for all aspects of education and training, and to manage higher education and training development;"
>
> (RDP, 1994)

In 1997, in a White Paper on Higher Education, the importance of the role of private providers of higher education was once more stressed, albeit against the continuing backdrop of quality assurance;

> "The Ministry recognises that private provision plays an important role in expanding access to higher education, in particular in niche areas, through responding to labour market opportunities and student demand. The key challenge in expanding the role of private institutions is to create an environment which neither suffocates educationally sound and sustainable private institutions with state over-regulation, nor allows a plethora of poor quality, unsustainable 'fly-by-night' operators into the higher education market."
>
> (DoE, 1997a: 2. 55)

Two aspects which are evident from a review of the documents sited here, including the Higher Education Act of 1997 and its amendments in 2000 and 2001, the CHE Policy Report of 2000 and the 2001 National Plan for Higher Education, are firstly government's commitment to ensuring access to quality higher education in partnership with the private education sector. The CHE Report in fact goes so far as to state that the role of the private higher education sector should be to;

> "...contribute to providing access to higher education of quality and to meet development needs, on their own or in responsible partnerships with South African public institutions."
>
> (CHE, 2000: 45)

and

> "Private institutions that contribute to the diversification of the higher education system could be sources of innovation."
>
> (CHE, 2000: 2)

According to Kruss (2004) and Mabizela (2004) there has been a resurgence of private higher education in South Africa with the specific goal of entrepreneurial profit-making since the 1990s. This has seen the franchising of qualifications from developed countries emerge, specifically between institutions of the United Kingdom and local South African private providers. Most private providers of higher education in South Africa were established through franchise agreements with foreign institutions, many of which were perceived as being of poor quality in their home countries (Naidoo & Singh, 2005: 9). As a result these foreign institutions executed poor oversight of quality arrangements at their South African franchisees. Subotzky points out that;

"Private higher education institutions in SA established themselves as pure business orientated institutions originally, but realised that, in order to be competitive, some sort of 'accreditation' or 'recognition' from external institutions was necessary."

(Subotzky, 2003: 1)

This pursuit of accreditation or recognition indicates the realisation on both the parts of government and the private provider sector of the necessity for independent oversight with regard to the provision of quality higher education. The CHE Report of 2000 also warns of the inherent dangers of the continuation of non-compliance with the regulatory framework for higher education. Since access to higher education is seen as a passport to the most important life chance for acquiring economic and social mobility, concerns are repeatedly raised regarding the protection of students participating in these unregulated programmes, as in;

"In a context of higher education provision that is of vastly uneven quality and where student awareness of quality issues is not uniformly high, the HEQC has prioritized the protection of students against poor quality programmes and maintaining the credibility of qualifications as non-negotiable."

(Naidoo & Singh, 2005: 5)

The CHE Report of 2000 goes on to acknowledge that the;

"...accreditation and registration of providers will enhance quality provision and protect students."

(CHE, 2000: 45)

It is in view of these concerns that the Higher Education Act of 1997, along with its successive amendments of 2000 and 2001 provides for the registration of private providers of higher education by the Registrar of Private Higher Education in his capacity as Director-General of the Department of Education. The application of quality assurance requirements of private higher education institutions is also provided for and depends on the following criteria;

"(a) is financially capable of satisfying its obligations to prospective students;

(b) with regard to all of its higher education programmes –

(i) will maintain acceptable standards that are not inferior to standards at a comparable public higher education institution;

(ii) will comply with the requirements of the appropriate quality assurance body accredited by SAQA in terms of the South African Qualifications Authority Act, 1995 (Act 58 of 1995); and

(c) complies with any other reasonable requirement prescribed by the Minister."

(Higher Education Act as amended, 2001: 52)

4. Bringing the Regulatory Framework for Quality Assurance in Higher Education in South Africa into Being

In May 2001, the Higher Education Quality Committee (HEQC) came into being as a permanent sub-committee of the Council on Higher Education (CHE). Its role would be that of an independent statuary body that advises the Minister of Education on all aspects of Higher Education including quality promotion and assurance. One of the major factors in the establishment of the HEQC was the phenomenal growth in the number of dubious ('fly-by-night') private providers in South Africa between 1997 and 2000 (Naidoo & Singh, 2005: 26). These unscrupulous operators often had no qualms in defrauding their students of their fees by providing the poorest quality educational programmes, and in many cases, no education at all.

The HEQC was mandated to;

- promote quality assurance
- audit the quality assurance mechanisms of higher education institutions
- accredit programmes of higher education

(Higher Education Act, 1997)

While there is some uncertainty according to which criteria the quality standards to be promoted in terms of quality assurance would be set, the key elements which form the foundation of the regulatory system are the requirements of *institutional audits* and the *accreditation of programmes*. These quality assurance mechanisms are applicable across the entire spectrum of higher education providers, including transnational and local, as well as private and public institutions.

In 2004 the HEQC began the task of implementing its quality assurance system using the following definitions of quality;

- "Fitness for purpose in relation to specified mission within a national framework that encompasses differentiation and diversity.
- Value for money as judged in relation to the full range of higher education purposes set out in the White Paper. Judgements about the effectiveness and efficiency of provision will include but not be confined to labour market responsiveness and cost recovery.
- Transformation in the sense of developing the capabilities of individual learners for personal enrichment, as well as the requirements of social development and economic and employment growth."

(HEQC, 2001: 14)

The quality assurance framework which gives effect to the above mandate is developed into five sub-systems, *viz;* institutional audits, programme accreditation, national reviews, self-accreditation and finally, quality promotion and capacity development.

4.1 Institutional Audits

Institutional audits takes place on a six-year cycle and are focussed primarily on the effectiveness of the institution's internal quality management systems regarding teaching, research and community engagement. Institutions submit a self-evaluation portfolio to the HEQC, covering the nineteen criterion areas specified by the HEQC. This portfolio is validated by a site visit of experts and peers, paying close attention to quality issues. Following the site visit, a report is issued detailing areas of good practice and innovation and also outlining recommendations for improving areas of under-performance. Institutions then submit an improvement plan where necessary, followed by a mid-cycle report on its implementation. No ranking of institutions is produced and there are no funding or legal consequences associated with the audit as its role is essentially concerned with quality development and improvement.

4.2 Programme Accreditation

Since 2005 the HEQC has employed a rigorous two-step process in the accreditation of programmes which meet the minimum standards specified in its eighteen accreditation criteria. New programmes that meet or exceed the minimum requirements of educational quality will pass through a candidacy phase until full accreditation is realised. Existing programmes are re-accredited through a combination of national reviews and a process of self accreditation. In addition to the requirements for accreditation of the HEQC, institutions must also comply with the requirements for registration as a provider of higher education with the DoE. Furthermore institutions must also satisfy the qualification registration requirements of the South African Qualifications Authority - SAQA[1], which according to section 3.3.5.6 of the RDP is;

> "a statutory South African Qualifications Authority with responsibility for accreditation, certification and the maintenance of national standards."
>
> (RDP, 1994)

4.3 National Reviews

With the re-accreditation of existing programmes in specific disciplines, national reviews may be used as a mechanism for this purpose. While the general accreditation criteria of the HEQC are used to assure quality education, criteria specific to the area of discipline are also included. National reviews entail the opinions of experts and practitioners in order to establish and develop the articulation between the learning programme and the skills required for the actual work situation. They also encompass the assessment of educational quality and provision in a particular discipline over the entire spectrum of providers, *viz*; public, private, local and transnational, throughout the country. It is, therefore, possible for a national review to identify specific strengths and weaknesses, as well as good practice in particular academic disciplines. National reviews also allow the HEQC to develop remedial

[1] www.saqa.org.za

strategies in order to rectify areas of concern which may be high-lighted during the re-accreditation process. Another advantage of national reviews is that they allow the mapping of local education provision within particular disciplines against international trends.

4.4 Self-Accreditation

Due to resource and capacity constraints the HEQC may grant self-accreditation status to programmes that had some form of accreditation, either from the HEQC or other regulatory bodies before the establishment of the current HEQC accreditation system for higher education. This is, however, only applicable to institutions which have demonstrated the effectiveness of their internal management systems. Such institutions may apply for self-accreditation status where the HEQC is their only statutory body. Self-accreditation status is granted for a period of six years and is based on audit findings and programme quality information from HEQC accreditation sources, as well as information relevant to the DoE and SAQA registration processes. Finally, institutions must submit a quality management plan outlining the execution of the re-accreditation implementation.

4.5 Quality Promotion and Capacity Development

> "The challenge that we face at the dawning of a democratic society is to create an education and training system that ensures people are able to realise their full potential in our society, as a basis and a prerequisite for the successful achievement of all other goals in this Reconstruction and Development Programme."
>
> (RDP, 1994: section 3.1.5)

As a means of correcting the uneven quality promotion of higher education in South Africa prior to the establishment of the HEQC a sub-system of the

> HEQC was created to develop and implement initiatives to improve quality provision and quality assurance at institutional, programme and individual levels. Another imperative of this sub-system is the promotion of activities to institutionalise a quality culture and commitment to continuous quality improvement in higher education. This includes the training of institutional auditors and programme evaluators in order to expand the evaluator capacity of the HEQC peer review system.
>
> (Naidoo & Singh, 2005)

In order to develop a single equitable, well co-ordinated and responsive system of quality higher education, all five of these sub-systems are applicable to all higher education institutions operating in South Africa. Students, therefore, have a greater choice of higher education programmes with more articulation between institutions and also a greater portability of qualifications from one institution to another than under *Apartheid.*

PART TWO:

5. Establishing a New Provider of Private Higher Education within the Regulatory Framework - Future Excellence Design Institute of South Africa (FEDISA[2])

It is against this background of quality assurance in higher education that a new, independent provider of private higher education in South Africa has been established. *Future Excellence Design Institute of South Africa* (FEDISA), which came into existence in January 2005, has been created explicitly within the confines of the current regulatory framework for higher education. While still in the candidacy phase the institution has been registered with the Department of Education as a Provider of Private Higher Education on Registration Certificate Number: 2007 / HE007 / 001. FEDISA has also been accredited to offer the Bachelor of Arts Degree in Fashion Design by the HEQC. This degree is registered on SAQA under identification number 60109 at NQF level 6 with a minimum credit value of 555 credits. (www.saqa.org.za, 2007)

An analysis of the Institute's mission statement provides an indication of the academic ethos pursued by the Institution;

> "To serve as a centre of excellence for tertiary design education by fostering an in-depth and holistic understanding of the principles that underpin the design process in an environment conducive to the optimal personal development of every student."
>
> (www.fedisa.co.za, 2005)

[2] www.fedisa.co.za

It is this pursuit of an in-depth and holistic understanding of the principles of design which appears to be based on the new understanding of design for the 21st Century, where a multi-functionality has become commonplace. In the following images

Fig. 1

(Fig. 1) we can see how seemingly mundane patio furniture can adopt the role of sculpture when not in use for the purpose of its originally intended function, *viz*; outdoor seating. This hints at the task before design educators, developing the design students' ability to synergise design into this multi-functionality while heeding the full value of the impact of design on the good of humanity.

Therefore, a new perspective of 21st Century design education is required. Even today, training in many vocational design programmes remain extremely narrow in the focus on what makes a good designer. From my experience of some twenty years involvement in the learning (as a student myself) and teaching of fashion design, I have been confronted by the view that all that was required for vocational success were the skills of drawing one's designs accurately onto paper, constructing the required patterns and the ability to assemble the garment with a high level of accuracy. While these programmes are occasionally padded out with small, almost insignificant adjuncts such as history and basic business skills, they remain primarily rooted in drawing, pattern-making and garment construction. They remain essentially skills based, devoid of any deeper theoretical understanding of the field of knowledge within which they exist.

What I am, therefore, proposing is that the entire process of design education needs to be more significantly filled out. The FEDISA programme offers several insightful developments on the road to achieving 21st Century market integrated design

expertise. In Hoogvelt's terms, this is to recognise the salience of the *new market discipline* which, within a shared phenomenological world, creates an "awareness of global competition which constrains individuals and groups, and even national governments, to conform to international standards of price and quality" (Hoogvelt 1997:124).

This dissertation is therefore a reflection of how the study of a variety of educational theorists may add to the value derived by both students and teachers undertaking design knowledge development in the 21st Century.

FEDISA has been developed in relation to four key tenets which underscore the achievement of its declared mission. These are a thorough understanding of what a curriculum is and how it may be viewed. The integration of the individual component parts of the curriculum as opposed to an atomised or collection type curriculum and the achievement in the students of the competencies of acting, knowing and being. The final tenet is the capacity to become a critically reflective practitioner. I include the structural lay-out of the FEDISA BA: Fashion Design curriculum here to illustrate how the component parts of the programme relate to the overall development of the design graduate. Not only in terms of the core skills of design and production methodology, but also in terms of the analytical, intellectual and historical competencies so vitally important to studies within the design disciplines;

> **"Goals**
>
> The aim of the 3 year BA: Fashion Design Degree is to produce design professionals, empowered with the entrepreneurial skills, to see the design process through from concept to consumer.
>
> The programme is designed for the creative business person, who has a flair for fashion, style and a love of all aspects influencing clothing design, such as prevailing trends, cultural influences, production technology and sound business practice.
>
> Equal emphasis is placed on the creative and technical skills of design and garment technology as well as the business acumen to compete commercially. All practical aspects of the programme are supported by a sound theoretical base.

Objectives

To evolve the student's technical skill to develop a concept into a three dimensional garment.

Focus on the business principles related to design to make a successful entry into the commercial business environment.

The programme consists of four major courses, each consisting of a number of sub-components. The FEDISA programme is assigned as set out below:

visual studies

conceptual design, story boarding, life & figure drawing, illustration, colour theory, visual merchandising, computer aided design (CAD)

Develops the ability to visually interpret, analyze, render and communicate current as well as original design ideas as three dimensional structures through thorough research and understanding of prevailing trends and further to interface electronically with the artistic components of the programme.

clothing technology

pattern technology, pattern grading, technical drawing, garment & textile technology

Develops the ability to technically analyze, construct and communicate pattern drafting requirements of two and three dimensional patterns for garment production using free draping and mathematical methods, thereby enhancing the ability to technically construct both commercial and couture garments using the appropriate technologies and methodologies, whilst at the same time understanding textiles, their uses and various re-fabrication methods.

business studies

entrepreneurship, business practice, principles & functions, computer studies

Develops the ability to view the world as an economic opportunity by understanding the business environment based on the analysis of relevant performativities required to successfully launch new small and medium economic enterprises, whilst equipping students with a high level of computer literacy skills to compete successfully in both the local and international design business arenas.

lifestyle studies

fashion & design history, communications & social studies, experiential training

> Develops the understanding of historical impacts on the world of design in context of the current socio-economic environment. This is achieved by analyzing the current global social constructs that impact on the daily performance of design professionals, while enhancing the development of confident communication and presentation skills, applicable to the working world."
>
> (www.fedisa.co.za, 2005)

It is this final component, *viz*; lifestyle studies which point to the biggest shift away from the traditional training in this formerly exclusively vocational field.

It is important to point out that while following the structural design of the FEDISA design education model, this dissertation is not an attempt to re-create all design educators in the 'good teaching' mould so often vaunted by the bureaucracies that have traditionally ruled educational institutions. Rather, it is an exploration of the key ideologies which appear to be beneficial to the practice of design education for the 21st Century. Many of the ideas put forward here are not necessarily modern or cutting edge, but their logic has stood the test of time and they are as vital today as they were at their conception. Furthermore, their inclusion in the practice of design education today may well offer a beneficial adjunct to regulatory systems pursuit of excellence.

While the theories explored here do not concern design education particularly, their application to the field of design education is in no way diminished. The structure that they lend to the originating idea of the learning programme has proven to be highly valuable in changing perceptions of educational practise, including how educators bring their personal expertise to their students, as well as shaping their world view. It is the intention of this dissertation to bring a similar understanding to the novice design educator in order to alleviate many of the stresses associated with the induction into an often foreign discourse, *viz*; the discourse of design education. I call it a foreign discourse since the assumption that good designers are also good educators is frequently misplaced.

There is a second feature of this dissertation which is appropriate to high-light at this juncture. It is the view of the changing application of design in today's market driven society. This means that design educators are today required to bring more than just the technical abilities or skills of various design disciplines to their students. As we enter the 21st Century we find ourselves more and more moving beyond the modernist design concept of 'form follows function'. We find ourselves drawn to address aspects of design, formerly thought of as secondary, as primary design motivators.

While we have often heard this new millennium referred to as the *"information age,"* (Castells in Hall 2001: 224) Don Norman (Norman 2005) argues that the economic benefits of the information age have set the stage for the appreciation of design to become ever more prevalent. As a technologically enlightened people we are no longer satisfied with a telephone that can make a long distance call or a dowdy garment that will protect us from the cold. Consumer societies have become obsessed with colour, texture, shape and often multi-functionality in design. In short we have become obsessed with the design aesthetics that colour our world.

> "Design is the livelihood or aspiration of a significant and increasing proportion of our society."
>
> (The Australian Bureau of Statistics, 2001)

So, what then is the information age in terms of 21st Century design? Unlike the industrial revolution of the late 1800's which brought us the ability to mechanize our world and thereby reproduce a single artefact millions of times over, the information age has seen consumerism become the ravenous monster hungry for the next original idea. Whereas, Henry Ford was content to turnout the *Model T Ford* motor car from 1913 to 1927 "*in any colour as long as it was black*" (Betton & Hench, 2002: 536) we conversely have entered the age of product diversity. As a globalized planet humanity has moved from the need to merely access mass produced products like the telephone to the unprecedented consumerism associated with the personal cellular phone. We have moved from wanting to communicate over distance to

wanting the latest multi-functional cellular device with interchangeable covers and integrated cameras. Similarly, clothing has moved from mere body covering to high fashion. I would argue that the information age, which has seen the rise of disposable income and increased personal leisure time, therefore has a direct correlation to the rise of aesthetic appreciation in the information age and what Richard Robbins refers to as the *Culture of Capitalism;*.

> "Capitalism has been defined by some as a philosophy just as Communism has by communists. It is described by them as a philosophy of personal attainment and achievement. It stresses the accumulation of wealth or Capital by individuals. However, the term "Wealth" is often mis-understood by anti-capitalists. Wealth, in Capitalist terminology, is defined as anything which an individual can personally attain. A good example of wealth in Capitalist terminology that is not usually considered wealth by others is spiritual fulfilment. Capitalists claim that, as it can be attained by an individual human and can be given to others or kept by the individual, it is wealth. Capitalists regard this attainment of wealth as the main driving force behind humanity. This driving force continues to push humanity forward. Capitalists regard advancement as one of the ultimate goals of humanity as a whole. As individuals advance themselves, they advance the rest of society with them."
>
> (Robbins, 2005: 62)

If we are then inclined to follow this premise that we have moved from an *Age of Replication* to an *Age of Design* consumerism, then the natural progression must be that we will in future require designers able to address the ever growing demand for difference and innovation. It is precisely this ability to innovate beyond the curriculum which sets design apart from most other areas of formal enquiry. It is a fundamental characteristic of design to continually challenge the assumptions we have come to hold of our world, about how things are or should be. By breaking down our assumptions of the world around us design is constantly offering the renewal and innovation which is now in such high demand in the developed world. While the outbreak of the First World War in 1914 may have put

Fig. 2

women in factories, it was design that put these same post-Victorian women in trousers. And again it was design that challenged the masculine vision of women created by World War II when Christian Dior introduced his "New Look" (Fig. 2) (Buxbaum, 1999: 63) to the world in Paris in 1947, returning the female to her feminine hour glass silhouette.

We would, therefore, need to reflect critically on the process used to train the next generation of design professionals. Manuel Castells discusses what the market will expect from the next generation of the labour force during his debates with a number of prominent South African politicians, academics and business leaders in 2001.

> "*Self-programmable* labour is labour which has the built-in capacity to generate value through *innovation and information*, and that has the *ability to reconstruct itself* throughout the occupational career on the basis of this education and this information."
>
> (Castells, 2001a:11 emphases added)

From the above quotation we may derive that students entering the 21st Century design profession will need a *meta* view of design and understand the global situations which impact on their professional practice rather than attaining only technical skill through their studies. Innovation, flexibility and economic viability will form the cornerstones of this self-programmability.

It is desirable to create a critically reflective design education environment in which to mould the design professionals of the 21st Century into these critically reflective, self-programmable thinkers. By being the catalyst for the students' process of change, design educators can enact the theories of Stenhouse, Bernstein, Brookfield, Barnett and Coates on the educational process of design development and thereby bring the 21st Century design graduate closer to Castells' model of 'self-programmability.'

Castells offers valuable clues here as to the direction we should take with the education of tomorrows' work force. The notion of 'self-programmable labour' is a valuable concept to consider in the educational process. It is, however, a process which cannot be premised purely on the practical pursuits of traditional vocational methodologies. It may be equated to the concept of 'independent thinkers' or 'self-directed learners.' Seen in educational terms this speaks to our graduates' ability to fuse aspects of skill, research, analysis, reflection, synthesis and self management into this composite reprogrammability. This fusion cannot be expected to happen unattended. It must be ensured that the structure of our educational programmes will accommodate the students' growth into this desired self-programmability.

Independent thinking is also the direct path to innovation, which when coupled with a strong understanding of finding and working with existing information will offer the graduates the ability to broaden their scope of professional practice, *i.e.* understand a fickle consumer market in a globalised information age. In this way our design graduates will be able to constantly upgrade their competence in a certain field as well as develop additional competencies in other or related fields. It may be concluded that the 'self-programmable' ability is the route to personal multi-functionality for the design graduates, enabling them to apply their design practice over various spheres of human endeavour, e.g. architects may also function as interior designers; fashion designers may apply themselves to creating furniture, and so forth.

What Castells is advocating here cannot be premised on a skills based, vocational education alone, the addition of high level cognitive aspects of understanding, such as awareness, perception, intuition, reasoning, and judgment to the learning programme will be an essential part of achieving this self-programmability. Castells says that;

> "The cross-fertilization between different areas of specialization, the flexible programmes that emphasize the capacity of students to think, find the necessary information, and be able to reprogramme themselves in the future seems to be the most effective pedagogic formula according to most experts of education..."
>
> (Castells, 2001b: 217)

The words *think, find* and *reprogramme* in the above quotation point directly to these high level cognitive abilities required by the 21st Century design graduate. Thinking critically is the cornerstone of the enquiring mind, finding and analyzing existing information is the foundation of innovation and the ability to reprogramme oneself is often premised on critical reflection as advocated by Stephan Brookfield in "Becoming a Critically Reflective Teacher," (Brookfield, 1995) which will be more fully explored later. Castells is speaking here of the ability to question the world rather than obediently following the *status quo*. This ability of the design graduate to question the accepted paradigms or challenge the assumptions by which the world functions is exactly the purpose of design education. Design education must prepare the graduate to be fully equipped for the challenges of the design and labour markets of the 21st Century.

This striving for continuous exploration will enable the design graduate to function over a broad spectrum of career opportunities, unlike our fathers who often spent their entire working lives in the same profession. Seen in economic terms the advantages are self-evident, with a diminished need for managerial oversight and a greater possibility for self employment as opposed to joining the ever longer lines of jobseekers.

The focus of design educators must be to more accurately prepare the graduates for the demands of the design economy of the 21st Century than is currently achieved by the educational approach to design of the established knowledge industry. The use of the term *knowledge industry* here reflects the often contentious move toward knowledge commodification. David Noble argues that the commercialization of research which started in the 1970's lead inexorably to the commodification of the

core educational functions of universities by the turn of the 20th Century. This has lead to the neatly packaged atomistic or compartmentalised curricula so endemic of the new millennium (Noble in Hall 2001: 229). The problem with such atomistic curricula is that pockets of knowledge become removed from each other leading to a breakdown in the students' ability to make interdisciplinary connections between various aspects of knowledge.

It must also be pointed out that while the educational content and methodology is not the only consideration in the establishment of a new learning environment, it is the crux which underpins any new educational offering. For that reason this dissertation concentrates solely on the educational aspects which may be enhanced by the focus on these two considerations.

In setting out on this venture I have had to answer some pertinent questions and reflect on my own assumptions about the educational process of design. The first question was 'What is Design?' Victor Papanek, widely regarded as the first *solutioneer,* put it that design should be for the sole purpose of improving the human condition, as far back as 1971 when he published "Designing for the Real World" (Papanek 1971). Papanek's contention, however, does not go far enough to fully address the changing perspectives on the need for design that we encounter 35 years after he made this statement. It would appear that he viewed the human condition solely in practical terms, thereby addressing practical problems with practical solutions. If this were true of our desire for design today there would be no market for the plethora of different toasters, sofas or automobiles. Our practical needs for burnt bread, soft seats and personal motorised transportation would all be met by the singular most practical interpretations of the products which address these practical needs.

Twenty-first Century design is concerned with a multi-levelled response to the practical problems encountered in society today. Multi-levelled because of the various human needs including the practical, aesthetic, emotional, technological and

environmental to name only a few, that design solutions today must address. These problems may range from appropriate clothing, (hiking gear) to transportation, (four wheel drive sport utility vehicles). Multi-levelled because we are no longer able to address design solutions on the basis of one single aspect or another, e.g. function over comfort or colour over texture. We no longer want mundane water-repellent, thermal hiking jackets. We want rapidly decomposing (environmental), micro-fibre (advanced technology), sweat-wicking (hygiene), thermal (health) hiking jackets in multi-colours (aesthetics) for easy identification (safety) in times of trouble with numerous pocket configurations (utility) to house our cellular and global positioning (communication) devices. In the same way a four wheel drive sport utility vehicle is now expected to be an emission free, environmentally friendly family wagon with off-road capabilities on the weekends and dirt repelling upholstery for those little accidents that life may throw at a young family.

Pure functionality has been replaced by the aesthetic demands of rampant consumerism. Design has moved from its original intent; that of solving practical problems of function, to address the more holistic range of human desire. These original design solutions may include the most rudimentary piece of wood hewn to create a seat in ancient times or animal skins tied around the feet to keep out the wet. In the 21st Century, however, design has moved beyond solving society's practical problems of mere functionality. Designers are now confronted with the need to be responsive to the wants of society. These wants may range from concerns of environmental impacts and sustainability to sheer aesthetic indulgence. I would contend that at the beginning of the 21st Century humanity has all but solved its problems of functionality by design. We have in essence conquered the functional **needs** of our current civilization. We have learnt how to refrigerate our food and cook it on beams of microwave energy; we can transport ourselves on and under water, over land at great speeds and even through the air. We have travelled to the moon and beyond and safely returned to our own planet. We can communicate via satellite from our personal cellular phones and

Fig. 3

watch television in the palm of our hand (Fig. 3). Even our wardrobes have expanded from the functional to the bizarre.

Based on this understanding of the shifts in the consumer market we may hypothesise that;

1. Mass production was driven by practicality and logistics but constrained by under-developed technology which was both based on a static, skills based education system and informed this same static education system throughout the early part of the 20th Century.
2. During the latter part of the 20th Century the rapid development of technology allowed for equally rapid changes in the consumer market, which became driven by consumers' eager to access style and innovation in addition to considerations of practicality. In other words, a culture of 'identity consumption' whereby society begins to build identities based on consumable commodities begins to develop.
3. In order to feed this growing demand of consumerism, production technology and the economic market needs a new approach to design education that emphasises innovation.
4. Innovation arises from the combination of reorganising what already exists, while integrating new technical options.

We are thus faced with a future where, save for thus far undiscovered inventions, designers will need the ability to reflect on the existing, in order to create products of aesthetic **want**. Don Norman identifies this 'want' in the following way;

"Reflective design is about the meaning of things. It's about message: what does using this product say about you? It's where your self-image is. It depends on your age, background, culture. The reflective level is where things like brand image and marketing come into play, selling products not on their functionality but on things like prestige and exclusivity. Reflective design is about creating things you want to show off to your friends. An example, on the cover of Emotional Design, is Philippe Starck's Juicy Salif (Fig. 4), about which the designer reportedly said: "My juicer is not meant to squeeze lemons, it is meant to start conversations."

(Norman, 2005: 23)

Fig.4

This is the 21st Century dilemma of design, creating products of aesthetic want, while critically reflecting on the ethical impact of design, which I think Papanek overlooked in his original analysis. John Ruediger writing in Globalized Culture, Consumption and Identity points out that;

"Post-industrial societies are characterized by their mode of production: it has gone from one based on need to an economy based on want. That is to say that their economies are no longer optimized to fulfil existential needs, but rather to efficiently detect, produce and satisfy consumer wants, since the basic needs of their citizens have already been met."

(Ruediger, 2006)

Therefore, we may ask; can we teach students to become designers or can we only teach them discipline specific skills? Michael Bierut, the world renowned Graphic designer, writing in the *Design Observer* about his personal design process verbalises the conceptual design experience of design professionals the world over. *"Somewhere along the way an idea for the design pops into my head from out of the blue. I can't really explain that part; it's like magic"* (Bierut, 2006). At the far side of the creative spectrum the American business analysist Chris Campbell writing in '*Where Do Ideas Come From?*' says; "*Brilliant, wildly creative people can pull*

breakaway ideas from thin air" (Campbell, 2006). These two responses are reflections of the answers offered by just about every designer I have ever encountered. And while every design professional will speak animatedly about their 'process' or the execution of their design ideas they return time after time to phrases like those above: *'the idea just popped into my head, I can't explain it, it just came to me out of thin air'*.

Fig. 5

This appears to be in line with Posner's contentions about cognitive perspectives which he describes as follows;

> "Cognitive views derive directly from the ideas of the philosopher Immanuel Kant, who claimed that people may be born with certain capacities or 'structures' for acquiring language, concepts and skills." and "Thus people do not passively receive information from their senses; rather they actively construct ideas and generate meaning from sensory inputs by interpreting the input on the basis of existing ideas and previous experience."
>
> (Posner in Toohey, 1999: 55)

I to have long grappled with the concept of 'teaching' design or 'creating' designers. I have always believed that design was largely intuitive and that the ability of one student to grasp the nuances of design over another was based on an innate sense with which design education had very little to do. By this I am not saying that the value of the design education process is negligible, but I am making the point that as educators we need to do more than train our students in the technical skills that underpin their chosen design disciplines.

Castells speaking about the purpose of the university in the 21st Century puts it thus;

"...there will only be scientific discovery, and connection with the world centres of scientific discovery, if universities are complete systems, bringing together technical training, scientific research and humanistic education..."

(Castells, 2001b: 216)

I think his view of the university as a complete system is directly applicable to the programmes taught in these universities and the construction of their curricula. If we wish to move our design graduates closer to the point of articulating the origin of ideas, it is imperative that we construct the design education curriculum as such a complete system; including in it technical training, research abilities and humanistic understanding.

Hence design education for the 21st Century should strive to develop the three broad competencies of analysis, reflection and synthesis in the design graduate. These I will each explore briefly in turn;

5.1 Analysis

Firstly, the designer's ability to analyse the design problem must be addressed. This means that the nature of design problems must be understood. These problems can take many forms and are not always exclusively related to form and function. Design problems may also be infused with cultural, political, environmental, economic, religious, social and symbolic considerations. Let us explore some of these multi-faceted design phenomena. The design of a house may relate to the aesthetic form desired by the new owner, it may also fulfil the required functions of providing shelter and comfort, but it will further need to address environmental concerns related to its use of materials, impact on the landscape, cost perspectives and community appropriateness. A prime example of the failure by the designer to recognize the political implications of design can be seen in the plush mountainside suburbs of Cape Town, South Africa where a house was erected resembling the notorious squatter camp shacks (Blikkies Dorp)

(Fig. 6) of the highly politically charged *Apartheid* era of this country, by virtue of its use of corrugated iron, wood and exposed plastic sheeting as building materials. The resultant outcry from the community culminated in highly publicized neighbourhood disputes and derogatory graffiti defacing the building. (Williams, 2006: 3)

Fig. 6

5.2 Reflection

Secondly, the ability to reflect on the wide spectrum of possibilities elucidated by analysis will ensure that the solutions to the identified design problems take into account the broadest possible base of application and considerations. As we have seen in the 'Blikkies Dorp' example above, had real reflection on the possible problems of application taken place before construction was undertaken it would have been clear that discomfort with the design could arise. Reflection is therefore often a continuation or a deepening of analysis and as a result of this review may first lead the design process back to analysis, often several times, before continuing on to synthesis.

5.3 Synthesis

Synthesis is the alchemy of the designer whereby previously unexpected solutions to design problems are proposed and often found. It must be made clear that simply because analysis and reflection have informed part of the design process, all synthesis will not necessarily be successful. However, I do strongly believe that a thorough understanding of these practices will empower designers to most suitably address the design problems with which they are confronted in the 21st Century.

In the following chapters we will consider the proposed elements for achieving these goals in the design graduates of the 21st Century.

6. What is a curriculum?

> "...curricula do not just happen. They exist because particular people in a particular place at a particular time believed that someone else should know about something."
>
> (Brookfield, 1995: 40)

Based on this understanding of a changing global design dynamic, we may now explore how the curriculum may be adjusted in order to deliver appropriate 21st Century design practitioners. Various theorists have conceptualised the idea of curriculum.

John Kerr defines the curriculum as, *"All the learning which is planned and guided by the school, whether it is carried on in groups or individually, inside or outside the school" (Quoted in Kelly 1983: 10).* This notion of the curriculum remains the cornerstone of the educational process that the teaching and learning process should without fail be planned (but flexible) and guided. Yet there are varying ways of approaching our planning and guiding of the curriculum as design educators.

The first view which we may take of the curriculum is that it is little more than a syllabus of knowledge to be transmitted from the teacher to the student. This approach relies almost exclusively on the preconceived notion of what aspects of knowledge would appropriately constitute a learning programme. This approach has its primary concern in content, that knowledge which will be included as well as that which will not. As Curzon (1985) points out, educators who subscribe to this curriculum approach tend to follow the traditional textbook approach of an *'order of contents'* or at the very least a pattern described as 'a logical' approach to what will create the educated man. They may also, however unconscious of the fact, be modelling their approach on their personal experience of similar teaching and learning which they may have undertaken in their own educational lives. This view of

the curriculum relies heavily on the creation of lists of knowledge leading inevitable towards an examination to measure to what degree the student has internalised the knowledge. The crux of this view of the curriculum is that it takes no cognisance of the students' role in the teaching and learning process. In fact I contend that it is not a process at all, but rather an enactment of an authoritarian view of knowledge upon a homogenous group of subjugated learners.

This way of looking at the curriculum can in my view not deliver the educational results required by design graduates in the 21st Century. It is clearly rooted in a distant era, devoid of the interactive student/teacher dynamics which are now considered essential in developing design students' awareness of their world. As Peter de Lisle so aptly puts it;

> "The new curriculum is aimed at transforming the worn out education system of the past. For the most part, students were fed on a meagre diet of passive rote learning and irrelevant facts. The aim is that they should now learn in a critical, active manner, developing relevant, real-life skills."
>
> (De Lisle, 1997: 2)

This approach to the curriculum also stymies any possibility of curriculum flexibility within the design teaching and learning milieu by allowing the student no voice and the teacher no leeway or diversion from the set content. It becomes a mechanistic approach, seeking merely to pass the preconceived knowledge from the teacher to the student. In many ways the teacher then becomes an automaton, transferring existing knowledge to students in the most 'feasible' way with whatever limited resources may be at hand.

In "Praxis - an introduction to the idea", Mark Smith refers to Aristotle's three-fold classification of knowledge as a way of understanding the differences of curriculum approach based on the *telos* or purpose of knowledge (Smith, 1999). Aristotle divides the disciplines of knowledge into the theoretical, productive and practical.

This is helpful in assisting us to understand how best to approach the design curriculum. Seen in this light theoretical knowledge would be knowledge which is pursued for its own sake. Here Smith offers the example of 'pure maths,' knowledge that is attained through focused thought. We may say that theoretical knowledge exists as the abstract ideas about certain phenomena from which we may derive 'rules' or formula which may then be enacted in practice. I would equate this way of thinking about theoretical knowledge, with the approach to the curriculum as merely the syllabus of content which I have described above. Rules of knowledge, that have long been contemplated and are in a sense then transferred from teacher to student. The application of theoretical knowledge does not form part of this view, but the importance here is situated firmly in the knowing of the information. The advantage of viewing the curriculum from this *content* or *theoretical* perspective is that it is highly predictable in its outcomes. Teachers know what the answers should be and therefore no divergence from the prescribed path to acquiring this knowledge is required. Assessment and evaluation in this context becomes a simple matter of right or wrong. This approach to the design curriculum can therefore be considered highly inappropriate as it in no way supports the possibility of action on the students' part in the process of 'making.'

Carr and Kemmis offer the following thoughts on Aristotle's classification of knowledge;

> "The purpose of a theoretical discipline is the pursuit of truth through contemplation; its *telos* is the attainment of knowledge for its own sake. The purpose of the productive sciences is to make something; their <i> *telos* is the production of some artefact. The practical disciplines are those sciences which deal with ethical and political life; their *telos* is practical wisdom and knowledge."
>
> (Carr & Kemmis, 1986: 32)

By contrast then, we can see that productive knowledge is concerned with the application of knowledge for the creation of artefacts. However, this cannot merely be a mechanistic reproduction of the application of knowledge. It must also draw on

the creative stimuli which drive the conception or origination of things to be made. As Aristotle points out, the productive disciplines are driven by the act of 'making,' this then would infer that there is some kind of plan and end goal involved, a plan to act as the starting point of making and an end goal to signal the completion of the making. It, therefore, follows that by approaching the curriculum with this view of the productive discipline in mind we become reliant on a plan or blue print as a guide for the development of knowledge. At first glance it would seem obvious that the curriculum for design education should be situated within the realm of Aristotle's productive knowledge discipline. Especially when considered in the context of 'making artefacts.' It would appear that little more than the skills of design and manufacture would suffice in the education of the design graduate. As the American writer Franklin Bobbitt put it early in the 20th Century;

> "The central theory [of curriculum] is simple. Human life, however varied, consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. However numerous and diverse they may be for any social class they can be discovered. This requires only that one go out into the world of affairs and discover the particulars of which their affairs consist. These will show the abilities, attitudes, habits, appreciations and forms of knowledge that men need. These will be the objectives of the curriculum. They will be numerous, definite and particularized. The curriculum will then be that series of experiences which children and youth must have by way of obtaining those objectives."
>
> (Bobbitt, 1918: 42)

It is unfortunate that almost 90 years after Bobbitt penned these words vocational programmes still largely subscribe to his curriculum philosophy. While the curriculum under these circumstances may well be the product of thorough investigation of the knowledge and skill required to competently fulfil the performativities of a specific vocation, [as opposed to the 'armchair' speculation of the curriculum vested only in content], it is not invested with a social conscience. I equate the term *social conscience* here with the creativity involved in Aristotle's productive discipline of knowledge. His reference to artisans and crafts-people (Smith, 1999) indicate an attunement with the natural world, using creative inputs in the application of their skill to make new artefacts, becomes an indicator that Bobbitt's curriculum theory as a

technical exercise falls far short for the 21st Century design curriculum. I suggest that the 21st Century design curriculum needs to go much further than Bobbitt would have us believe. It must, in addition to Bobbitt's theory also include the following three aspects, *viz*;

1. Knowledge and skill transmission
2. Innovation and creativity
3. A sound regard and understanding of the ethical aspects of consumption and production

If, we then follow Aristotle's reasoning for the classification of knowledge, where the theoretical is concerned with knowledge for its own sake, but from which we can define the rules which govern the application of this knowledge, and the productive discipline is concerned with the action of 'making', then it would appear that the design curriculum should be quite comfortable as part of this productive knowledge discipline. Why then do I advocate a change for the design curriculum now? While situating the design curriculum in the productive paradigm may well have been true a century ago, it would be educational suicide for this notion to continue into the 21st Century.

One of the major problems identified with the *curriculum as product* model is that it takes it structural cues from an organising idea or design plan in much the same way that Aristotle's crafts-people created artefacts, for example; a builder may set out to construct a house. This will begin with an idea of what the end product should look like, during construction some adjustments may be made to the original idea, but by and large the idea will not change much between conception and completion. The curriculum which is viewed in this way is often also constructed without much flexibility between its conception and its actual enactment. And while it is prominently based on thorough research into the requirements of its students, it all too often neglects the uncertain inputs of the students' themselves into the process of teaching and learning.

Secondly, while we find most vocational programmes rooted in the productive discipline of knowledge it is true to say that these programmes often have their origins in the systematic study of the industrial technologies. However, from this background they often also bring more than the mere knowledge required by students to function competently in these vocations. There is a tendency also to bring the three tenets of 'scientific management' into these curricula, *viz*; the breaking down of holistic concepts into small, simplified components, strong management of the educational environment and cost considerations based on throughput rate. This perspective of the curriculum therefore falls squarely in line with my previously discussed point of view relating to the commodification of knowledge for the post 1970's knowledge industry postulated by David Noble.

In addition to these already disconcerting traits of the *curriculum as product*, Smith alerts us to the idea that this curriculum approach has no social vision or programme to act as a guide of conscience (Smith, 1996 & 2000). Shirley Grundy concurs that the curriculum must move beyond the mere technical exercise of education when she refers to the curriculum as;

> "A programme of activities (by teachers *and pupils*) designed so that pupils will attain so far as possible certain educational and other schooling ends or objectives."
>
> (Grundy, 1987: 11 emphasis added)

Aristotle's third section of knowledge discipline classification refers to the practical, knowledge concerned with the ethical and political life (Carr & Kemmis, 1986: 32).

I have often wondered how design education programmes fit with Aristotle's classification of knowledge. From my experience it seems clear that their primary focus remains firmly situated within the *telos* of the productive (the action of making) discipline. I would venture that the long held educational principles of vocational training premised on Franklin Bobbitt's theories have largely outlived their usefulness

and that the 21st Century demands design training that incorporates knowledge from each of Aristotle's disciplines. We can no longer look at design as exclusively situated in the productive discipline. While design is still greatly concerned with the action of making, it has developed to embrace both the theoretical and practical disciplines of knowledge as well. As I have already discussed, design for the 21st Century can no longer be premised exclusively on the ability to render an idea on paper and then process the said idea into an artefact. Designers are now required to be invested with the abilities to conceive original ideas based on thoroughly grounded research and analysis. Further, they must be able to develop the theoretical rules which govern their creative process. Let us equate this with the understanding of why the artefact needs to be designed in a consumer specific way. This immediately places design education also in the realm of the theoretical. Let me call this the precursory stage of design. Here, we may begin to bring the design graduate closer to the articulation of design origination which is currently so hard for designers to grasp.

The next dimension of the 21st Century designer is the understanding of the values associated with Aristotle's practical knowledge discipline. Based on wisdom and ethical knowledge this paradigm of design knowledge has become ever more prominent as we begin to awaken to social, economic and perhaps most profoundly, to environmental crises. What then is the ethical knowledge which I believe we now must thrust upon design education? The impact of design has over the past century become more and more prominent with the advent of the industrial revolution. Where we have previously flourished through design, we have now begun to evaluate the consequences of our unbridled 'action of making.' And we are slowly awakening to the realisations that design in Papanek's idiom 'for the good of mankind' may soon manifest the sting in its tail. While we have spent a century creating design solutions oblivious to their ethical impact, on both our planet and our fellow man, the time has arrived that we as design educators must act in the practical knowledge discipline to ensure that the 21st Century design graduate is imbued with a sense of ethical wisdom and practice.

It is this ethical wisdom and practice which I believe will be crucial to moving towards a more sustainable future - by rethinking how we deliver products and their benefits without decimating the world around us, or compromising the well-being of others (now or in the future); sustainability is a key to enhanced performance and greater competitiveness.

By minimizing environmental impact, sustainable design, based on an ethical approach to design may bring us closer to the much vaunted concept of a 'triple bottom line'. This triple bottom line seeks to expand the conventional economic or financial focus of the 'bottom line' to include social and environmental considerations, *viz*; social – people, environmental – planet and economic – profit.

> "Like any good design, sustainable design involves delivering the best performance or result for the least cost over the long term. Sustainable design involves the strategic use of design to meet current and future human needs without compromising the environment. It includes (re)design of products, processes, services or systems to tackle imbalances or trade-offs between the demands of society, the environment and the economy and, ultimately, restoration of damage already done."
>
> (Otto, 2006)

The Conceptual Cycle Model for 21st Century Design Education vs. the Design Process Progression Model

What I am proposing for the 21st Century is a design education model based on the conceptual cycle rather than the continuation of the traditional linear design process progression model which is solely premised on the understanding of the specific 'making' skills of vocational programmes.

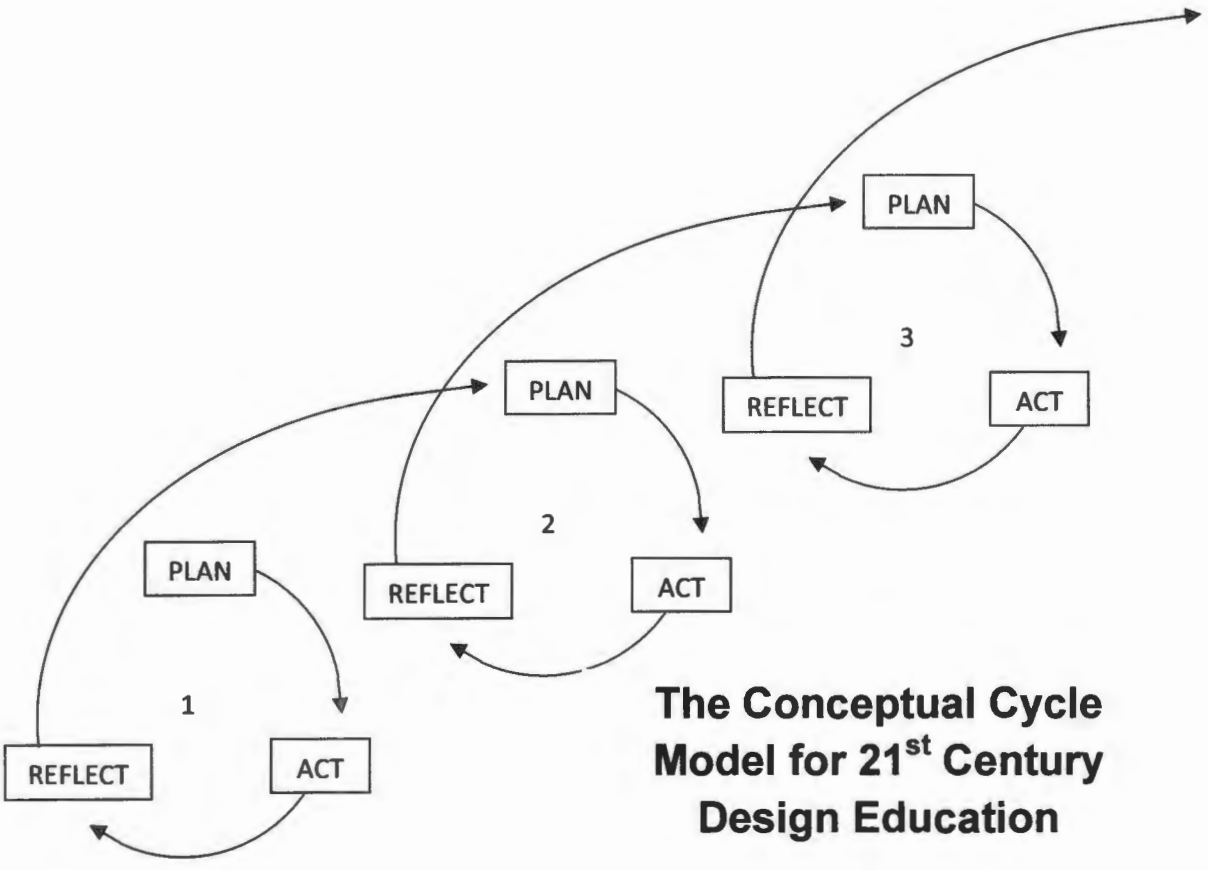
The Design Process Progression Model of Vocational Programmes

Fig. 7

As the Design Process Progression Model (Fig. 7) above illustrates, design remains largely premised on the unarticulated idea, that idea which simply 'pops into the designers head'. This essentially unsituated idea is then developed though a pattern to the blue-print stage which is used as the starting point for the artefact making. The entire process may occur without any attention to what has influenced its origination or to its impact on the world at large. Castells critiques institutions following this model as providing;

> "... overly focused and practical vocational training, which ironically, has little value to business. Given the new demands of global capital, claimed Castells, such 'traditional vocational training is obsolete'.
>
> (Hall, 2001: 239)

By contrast the Conceptual Cycle Model for 21st Century Design Education (Fig. 8) takes into account that design is greatly improved when its origination is clearly understood through research and analysis. This equates to Aristotle's theoretical telos, where much of this knowledge may not be directly implemented into an actual design artefact, but the fact that the designer, as a person, has pursued this knowledge will effect changes in the person which may indirectly influence the design process. Here, an example would be that the development of a broad based general knowledge will enable such a design professional to draw more widely on understandings, and, therefore inspirations, which may influence the quality of the final design artefact.



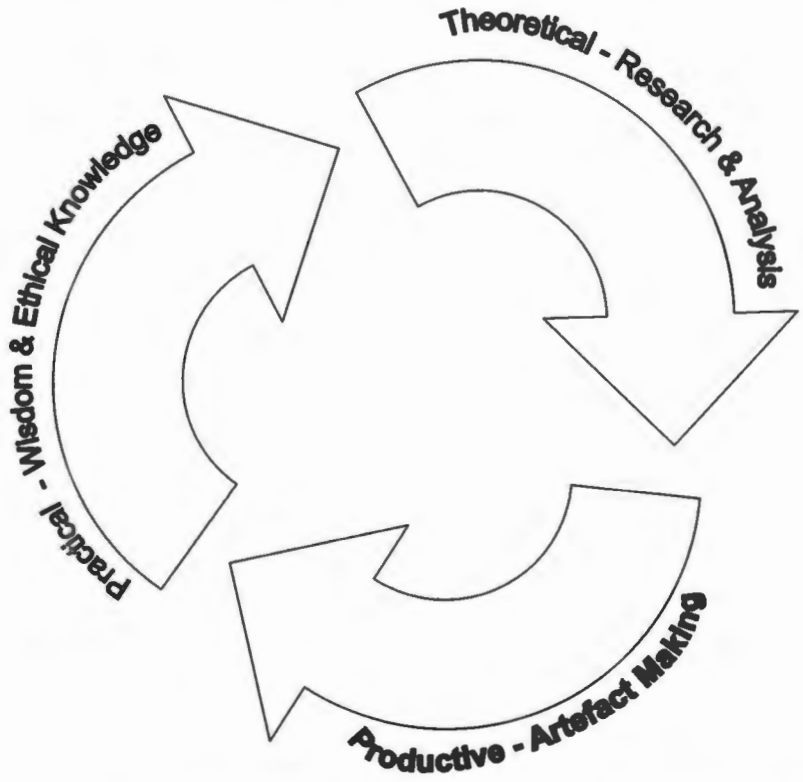
The Conceptual Cycle Model for 21st Century Design Education

Fig. 8

Similarly, by attending to the practical telos of wisdom and ethical knowledge the designer is better able to evaluate the impact of design on the natural world. In so doing design may grow to embrace its ethical responsibility.

It should be noted that the Conceptual Cycle Model for 21st Century Design Education, by virtue of its cyclical nature continually reflects upon itself. This cycle of reflection may be repeated several times before the finalisation and implementation of the design artefact, in order to ensure that all possibilities have been adequately considered. This cyclical system is in direct opposition to the Design Process Progression Model for Vocational Programmes, which is neither bounded by the theoretical nor practical telos. Its linear nature, situated exclusively within the productive telos, describes a system devoid of reflection or consequence.

In the detail below (Fig. 9) we can observe more closely how this cyclical model relates to Aristotle's various disciplines of knowledge.



The Conceptual Cycle Model for 21st Century Design Education – DETAIL

Fig. 9

This model also illustrates Zuber-Skerritt's principle of reflexive action, *viz*;

Planning:	Analyse the problem
	Create a strategic plan of action
Action:	Implement the strategic plan
	Observe and evaluate results
Reflection:	Reflect on the results of the evaluation
	Reflect on the total action
	Reflect on the research process

Identify a new problem

Start a new cycle of planning, action, observation and reflection

(Zuber-Skerritt, 1992)

Now that we have developed an understanding of how the curriculum may be approached, we may begin to consider how best to construct the design curriculum for the 21st Century. To begin with we may set out to determine what the curriculum may be. Lawrence Stenhouse offers the following definition of the curriculum;

> "A curriculum is an attempt to communicate the essential principles and features of an educational proposal into such a form that it is open to critical scrutiny and capable of effective translation into practice."
>
> (Stenhouse, 1975: 4)

I would argue that what Stenhouse is proposing here is the view of the curriculum as a documented design plan of the educational process. Firstly, he points to 'essential principles and features of an educational proposal' which would suggest that a curriculum must have identifiable objectives based in the knowledge field concerned. These would be devised in answer to the purpose of the educational offering. In terms of the design curriculum it would mean an analysis of those skills, both practical and cognitive which would be required by the design graduate to function appropriately in the discipline of 21st Century design. Let us call this the **'WHAT'** of the curriculum.

Stenhouse also points out that the curriculum as a design plan must stand up to 'critical scrutiny'. This I believe relates to the clear and logical construction and learning progression of the educational plan. The curriculum must thus be able to justify its reason for being or its purpose. It must also show the reason for the inclusion of certain aspects of learning and justify the exclusion of others. I will call this the **'WHY'** of the curriculum.

Thirdly, Stenhouse contends that the **'HOW'** of the curriculum must also form an integral part of this educational design plan. How the curriculum will be enacted or implemented is thus an equally important consideration.

Lubisi, Parker and Wedekind concur with Stenhouse on the form of the curriculum as a design plan by referring to it in terms of an architectural blueprint.

> "The first understanding looks at curriculum as if it is a blueprint. It is regarded as a set of instructions similar to the drawings given by architects to builders when a new building has to be constructed."
>
> (Lubisi, Parker & Wedekind, 1998: 73)

In simple terms then, the design curriculum for the 21st Century must respond to the knowledge base required by the design graduate in order to comprehensively function in this vocational field, beyond the long accepted ideas of mere 'form and function' principles of applied design. What is included in the design curriculum will be based on industry liaison and research, again to best address the performance competencies necessary for design professionals and lastly must offer guidance on the implementation for achieving the goals of the 21st Century design curriculum.

However, despite these well laid principles of the intended curriculum, Stenhouse warns that there is a second view of the curriculum, that the implementation of the curriculum in practice may be subjected to various unplanned influences. The actual curriculum may, therefore, differ from the original intention. He argues that;

> "On the one hand the curriculum is seen as intention, plan or prescription, an idea about what one would like to happen in schools. On the other it is seen as an existing state of affairs in schools, what does, in fact, happen."
>
> (Stenhouse, 1975: 4)

What Stenhouse is showing here is that the participants in the enactment of the curriculum will bring their own ideologies, belief systems, experiences and views to bear on the practice or enactment of the curriculum. Teachers will teach with specific slants to their own views and experiences, while learners will learn in relation to their personal views and experiences. Even teaching spaces and resources may impact on the intended curriculum, adjusting its intentions to fit its actual implementation. Catherine Cornbleth agrees that what actually happens in classrooms is *"an ongoing social process comprised of the interactions of students, teachers, knowledge and milieu"* (Cornbleth, 1990: 5).

Lubisi *et al* concur with this view of the curriculum in practice in the expansion of their architectural analogy by pointing out that;

> "The second definition also includes a plan, but recognizes that the plan is only the starting point...The architect's plan is a necessary part of building, but it is not the same as the completed building".
>
> (Lubisi, Parker & Wedekind, 1998: 73)

Finally Stenhouse, writing on the actual enactment of the intended curriculum concedes that, *"It is teachers who, in the end, will change the world of the classroom by understanding it"* (Stenhouse, 1975: 7).

As shifts occur between the intended and the implemented curriculum, so other aspects of curriculum come to light. The first of these is the unintended, implicit or hidden curriculum. Unintended, because what the student learns from the interactions involved in the educational process between teacher, environment and organizing structure is not explicitly a part of the intended curriculum plan.

A. Vic Kelly writing in "The Curriculum: Theory and Practice" defines the unintended or hidden curriculum as follows;

> "...those things which pupils learn at school because of the way in which the work of the school is planned and organized, but which are not in themselves included in the planning or (sometimes) even in the consciousness of those responsible for the school arrangements."
>
> (Kelly, 1983: 8)

While the term 'hidden curriculum' is attributed to Philip W Jackson (Smith, 2000) for his 1968 study entitled "Life in Classrooms." His views of the hidden curriculum revolved essentially around what he called the three R's; Rules, Regulations and Routines, which he proposed students learned by inference or by virtue of being part of a group. On this basis the learning associated with the 'hidden curriculum' is often seen in a negative way. Students learn the values associated with examinations and the social relationships of the school, such as the nature of the teacher-student relationship, the organization of classes, and the value of individual subject matter in relation to other learning components through this implicit observation of the hidden curriculum. Yet it must also be recognized that such 'hidden' learning is not all negative and that it can be potentially liberating. I would argue that especially within the design curriculum where a lecturer will frequently model the design practice for the student, much valuable, unintended learning will occur by virtue of the hidden curriculum. This 'modelling' of practice, however unintentional, will often form the grounding for the developing practice of the student and may be said in many ways to mimic the practice, methodology, and also attitudes of the teacher in relation to the subject matter. Teachers are therefore, in a sense, often unknowingly teaching their students well beyond the intended curriculum of knowledge. This 'hidden' curriculum is a concept to which I will be returning in subsequent chapters as its impact on the development of students becomes ever more pronounced.

Next I wish to explore the curriculum in terms of the ideologies which impact on it. The curriculum is a plan of *what, why* and *how* an educational offering should be designed. We must, however, realize that the curriculum cannot be developed in isolation of the broader context of society, which its graduates are being trained to address. It is essential that we recognize the impact of the prevailing beliefs and values of people in a particular society at a particular time.

To better understand the term ideology in the context of curriculum design I quote here from Ashley;

> "... a set of beliefs and values which coheres together in a more or less systematic way and can therefore be differentiated from other such sets. An ideology is held by a group of people, for whom it explains the nature of the reality they experience, and it also has the power to commit them to action. They act because they believe... Educational ideologies are therefore viewed as the system of beliefs and values about the purpose of education held by particular groups of educators and public which result in educational action."
>
> (Ashley, 1989: 2)

This has far reaching implications for the design curriculum of the 21st Century. I venture that Western consumerism may today be viewed as such a cohesive ideology of broader society. A society which has at the beginning of the 21st Century come to expect and demand access to the best that design has to offer. Melissa Suggitt writing in Euromonitor International discusses the spread of this Western consumer ideology into the previously defined East Bloc countries;

> "Consumer trends traditionally associated with Western markets will continue to thrive in the New Europe over the next 5 year period, according to Euromonitor's "The New Europe" report. Gina Westbrook comments, "Added-value products, offering luxury, health or convenience will drive growth ... benefiting from rising purchasing power among consumers and the increasing presence of manufacturers, which will bring greater product range and innovation."
>
> (Suggitt, 2007)

As the ideology of Western consumerism spreads like a new hegemonic religion, creating ever more converts hungry for diversity, these new recruits begin to participate in what Ashley calls the 'experience of their reality'. They buy into the idea that diversity and multi-functionality in product design is an expectation, if not a right. The idea of a market under-supplied of products reflecting this expectation becomes decidedly Third World. As society's demand for product diversity rises, so the impact on design educators becomes more apparent. Seen as part of this demanding

society, design educators cannot stand in isolation and are bound to feel compelled to act, as Ashley points out, by designing the curriculum to respond to society's needs. We can, therefore, identify a direct correlation between society's broadly held ideologies and their impact on the curriculum.

The desire for product diversity and multi-functionality has become an overwhelming characteristic of design expectation. How well the design professionals of tomorrow are equipped to deal with this demand has become the focus of the new design curriculum.

Elliot Eisner also refers to the 'curriculum ideologies' or the beliefs we hold about the curriculum. These he defines as "the value premises from which decisions about practical educational matters are made" and "beliefs about what schools should teach, for what ends, and for what reasons" (Eisner, 1994: 47). But decisions imply power. So decisions about the curriculum, such as what to include, what to omit, how to enact it and the reasons for its being are often dictated by those groupings of society which hold the most power. In terms of the design curriculum this power is most often vested in the consumer market. The design curriculum must thus be designed in close relation to this very demanding sector of society. Pam Christie offers the following on the subject of power in the design of curricula;

> "The curriculum embodies social relationships. It is drawn up by particular groups of people; it reflects particular points of view and values; it is anchored in the experiences of particular social groups; and it produces particular patterns of success and failure. Assumptions about what counts as valuable knowledge, as basic skills and as essential learning experiences for the curriculum are themselves socially influenced and contested."
>
> (Christie, 1992: 16)

It becomes clear then that the curriculum is developed in answer to this highly demanding society, built out of the desires that inform such social groupings at a particular time. This is not to say that society as a whole will have a voice in defining

what the curriculum will be. Decisions will ostensibly be taken by the dominant groups within that society, yet there remains an inescapable irony in the power relations of the curriculum. While the dominant group may be the decision makers in the design of the curriculum, it is the teacher who will enact the intended curriculum, bringing his/her own values and beliefs to bear on the actual curriculum and thereby bringing society's voice to the students.

In reality, society's voice may be viewed as the market with its consumer demands and pressures for multi-functionality on 21st Century design, which will impact on the curriculum design. While the state's understanding of these factors is signalled in the documents quoted here, it is the private sector which invariably must respond to these market forces and ideologies for continued survival. This focus on quality education and market responsiveness, where private providers may be more attuned with what both students and commodity markets are looking for, indicates the importance of the linkage between the curriculum and the quality of private sector provision in the 21st Century.

7. Integrating the Curriculum for 21st Century Design

As we have seen in the previous chapter, the curriculum for design cannot simply be a loose collection of knowledge which we hope will develop the desired competencies for 21st Century design in our design graduates. There is another vital consideration in terms of the structure of the design curriculum which must be addressed. This vital consideration is what Basil Bernstein calls the *integrated curriculum* (Bernstein, 1975: 81) and Paulo Freire refers to as *interdisciplinarity* or *transdisciplinarity*. Simply stated this is the ability to articulate or make connections between different disciplines of knowledge. I contend that this should be the primary motivator of 21st Century design education.

Now that we understand that the curriculum consists of various components of knowledge or subject fields, and we know that knowledge can be classified, according to Aristotle, into the theoretical, productive and practical, we must consider how to organise these components into a cohesive curriculum for design education. Bernstein identifies two broad types of curricula in his groundbreaking 1975 work entitled *Class, Codes and Control*. In it, he discusses the collection type curriculum structure and counter points this with what he calls the integrated curriculum. (Bernstein, 1975)

As a point of departure I will consider the collection type curriculum structure first. According to Bernstein a collection type curriculum exists when there is distinct insulation between the individual components that constitute a learning programme. In other words, when a curriculum consists of a number of unrelated components or subjects, it can be said that such a curriculum structure is composed of a number of well defined contents with clear cut boundaries which stand in closed relation to each other. This means that there is no articulation across the subject boundaries. And while such a curriculum structure may well have some underlying concept, such as creating "the educated man" (Bernstein, 1975: 80) its purpose is generally to satisfy external criteria; such as examinations, rather than the internalised application of knowledge or development of skill in the graduate. Collection type curricula are

therefore not primarily concerned with the development of performativities in graduates. I would venture that one can draw a direct parallel between collection type curricula and Aristotle's classification of theoretical knowledge, *viz*; knowledge that is pursued for its own sake without the intention of putting it into practice.

A further aspect of the collection type curriculum structure is that there is little or no connection between the various components which constitute it, due to the often strong insulation of these components from each other. Each component of the collection type curriculum may be viewed as an autonomous course of study without any explicit relation to the other components of the same curriculum. As Bernstein points out;

> "... the syllabus of each content is in the hands of those who teach it and those who evaluate it."
>
> (Bernstein, 1975: 81)

Bernstein goes further with his analysis of the insulated components of the collection type curriculum; he identifies the fact that within this autonomous structure of the curriculum there may be widely varying teaching methodologies and assessment practices. Students are, therefore, often hard pressed to draw any connection between one subject matter and another, even where there may be a direct correlation between the specific content of one subject field and another.

I would suggest that it is not unrealistic to say that the collection type curriculum will have a marked impact on the students following such a programme by virtue of its hidden curriculum. Students following such collection type curricula may well be socialised into the view of seeing their education in isolation from the world in which they must ultimately function. If we reflect here again on Castells' notion of *"Self-programmable labour"* (Castells, 2001a:11) it becomes apparent that the highly desirable ability to integrate various complex systems is not explicitly underpinned by a collection type curriculum.

But there are other aspects which also tend to work against the suitability of the collection type curriculum structure for design education. Bernstein alerts us to these with the following;

> "The educational relationship tends to be hierarchical and ritualized, the educand seen as ignorant with little status and therefore few rights."
>
> (Bernstein, 1975: 82)

I would venture that the collection type curriculum is devoid of dialogue and therefore, also devoid of the democracy of teaching and learning. It is decidedly one sided, authoritarian and therefore unable to benefit from the dialogue of the dynamic educational student/teacher interaction. Here Freire concurs by adding that;

> "... the teacher's role as the active one in the teacher-learner relationship is an anti-dialogical approach. It serves the oppressor by denying the learner an active role in the learning."

and

> "... for the learner to move from *object* to *Subject*, he or she needed to be involved in dialogical action with the teacher."
>
> (Freire, 1970: 74)

In addition, Shirley Grundy has also pointed out in *Curriculum: Product or Praxis* (Grundy, 1987) that the importance of the student voice lies in the added perspective with which it imbues the teaching and learning process. This is an aspect of the educational process which is of primary importance in the discipline of design studies. By valuing this duality of voice in the pursuit of understanding, the design educational process is able to reflect the dynamism of the authentic design process in action. It is also important for us to consider what Freire termed *'Interdisciplinarity or transdisciplinarity'*.

"The activity of teaching using interdisciplinarity or transdisciplinarity implies the establishment of a participatory and ultimate school in the training of the social subject."

(Freire, 1970: 79)

We can therefore understand that what Freire is advocating is the ability to articulate between various complex systems or knowledge disciplines, be they academic, social, cultural, communal or any of the myriad of other systems which govern our world. This understanding is therefore directly premised on a key aspect of Freire's notion in the above quotation. The aspect of 'a participatory and ultimate school' points to an emphasis on the value placed on all the participants in the educational process, whether it is the teacher, the student, the milieu or the community. Here the inference is not merely that the teacher is valued as the gatekeeper of knowledge. The contribution of the student enjoys an equally high status in the development of understanding. But Freire goes further to include the communities that education is designed to serve. He places a high value on the role that such communities must play in generating the academic development of the graduate.

Here are important parallels with what I believe must be strived for in a 21st Century design curriculum. The first is the concept of collegiality, both inside and beyond the classroom; a collegiality where the teacher, the student and the community contribute to the development of knowledge and its understanding - together. This is the way that we will truly be able to attain the integration of complex systems for the ultimate development of design education. Freire offers his own view on the integration of the curriculum and the systems which inform it;

"The fundamental aim of interdisciplinarity is to experience a global reality that is written into the daily lives of the pupil, teacher and people and which, in traditional schooling, is fragmented and compartmentalized. Articulating wisdom, knowledge, experience, school, community, environment, etc. is the aim of an interdisciplinarity which is translated into practice through working collectively and in solidarity in the organization of work in the school."

(Freire, 1970: 80)

Smith takes a similar view of a globalised integration of the influencing factors that inform the curriculum when he states that we must;

> "...step back and take a global view of curriculum and instruction as cultural and human artefacts. Like Jerome Bruner, [the] writers remind us that what happens in classrooms cannot be viewed without reference to larger social, cultural, and political phenomena:..."
>
> (Smith, 1999)

This idea of knowledge integration, incorporating a global perspective on the teaching and learning process is the fundamental cornerstone of 21st Century design education. The ability to draw inspiration from the broadest cross section of knowledge and lived experience, while explicitly heeding the ethical consequences of design actions, lies at the core of developing the design professionals for the Age of Design.

While I have already high-lighted some of the shortcomings of the collection type curriculum as it relates to the world of design education, I would like to look more closely at what Freire terms *interdisciplinarity* and Bernstein calls the *integrated curriculum*. It is here that I believe we will find the answer to the most appropriate curriculum structure for the design education disciplines. Freire speaks of the fundamental aim of interdisciplinarity as the experience of global reality written into the daily lives of pupils, teachers and people. While I have referred to the desired ability of designers to integrate complex systems, it is in the context of interdisciplinarity that this idea becomes clear. If we then consider the notion of a global reality it becomes immediately obvious that such a phenomenon must consist of multiple complex systems. I will call these systems fields of understanding. They may include economics, ethics, environmental, community, education, etc. In fact, any phenomena in which we may detect an organizing structure would to my mind constitute such a complex system in the context of this dissertation.

In order to function as a 21st Century design professional the design graduate will require a broad understanding of these complex systems which govern our global world. And not only will the understanding of various fields of knowledge become increasingly important, but the ability to articulate between those understandings will be the ultimate goal of design education. Naturally what I am advocating here is not an education based on broad superficiality, but one infused with the ability to find, work with and connect information from these various fields of understanding. So in a way I could be considered to be anti-specialization, being instead in favour of a broad knowledge base with a strong command of the high level cognitive abilities of analysis, reflection and synthesis which I have previously discussed. As Bernstein points out in regard to specialization;

> "...when we get such a decrease in the number of closed contents in a collection with the educational life, we have specialization. And such a form of a collection is referred to evaluatively as education in depth."

and

> "With the specialized form of collection, as you get older you know more and more about less."
>
> (Bernstein, 1975: 81)

It is this narrowing focus within a specific field of knowledge against which I rebel when considering design education for the 21st Century. Knowing more and more about less clearly stands in opposition to the performativities expected from designers in order to address the multi-functional demands of our new consumer-driven age. Where the specialization approach was a 20th Century phenomenon with life-long job security and production in narrow bands, in the 21st Century this approach no longer matches the economy. Therefore we cannot educate the 21st Century design professional in isolation from Freire's global reality. Also, we must turn to Bernstein's integrated curriculum to investigate an appropriate structure for design education curricula.

I will briefly illustrate one of the difficulties frequently encountered by entry level design students in relation to their ability to articulate between various fields of understanding. I will begin from a microcosmic perspective within a BA: Fashion Design programme with which I am currently associated. This programme consists of four integrated courses, *viz*; Visual Studies, Lifestyle Studies, Business Studies and Clothing Technology. Each course is further divided into various, but again integrated, subject components. Each of these subject components is devised to build an overall understanding and competency in each of the courses, which together are devised to foster the overall understanding and competencies of a design professional in the field of Fashion.

The Visual Studies programme at first year level is constituted of the following subjects; life and figure drawing, illustration, rendering, conceptual design and storyboarding. Together these subjects develop the students' ability to transform a design idea into a fully rendered visual presentation. This sounds simple enough and students are frequently able to master the articulation of subjects within this course. However, the visual design presentation is not exclusively comprised of the subjects encapsulated within the Visual Studies course. In this instance the visual presentation must also draw on components from the Clothing Technology course with the incorporation of technical drawing and textile swatches to support the technical analysis and construction materials of the proposed artefact. It is here that problems most frequently arise. Students, who may be competent at technical drawing when the subject is isolated in the Clothing Technology course of the programme, find it near impossible to incorporate the same level of technical drawing skill when required to draft the technical analysis for visual presentations in the Visual Studies course of the programme.

Furthermore, when taking a broader view, students struggle to articulate between whole courses of the programme, failing to make the connections between the social aspects developed in the Lifestyle Studies course, which underpin the reasons for and responsibilities of design origination. Similarly they may struggle to grasp the

impact of design on the economic realities of the Business Studies course, failing to articulate between the cost implications of one creative flourish and another.

I would argue that the primary instigator of this academic malaise is the way in which students are intellectually socialized throughout their pre-tertiary academic career. Bernstein suggests that;

> "Under the specialized form of collection, knowledge tends to be transmitted in a context where the teacher has maximal control or surveillance, as in hierarchical secondary school relationships..."
>
> (Bernstein, 1975: 82)

In contrast, I would argue that it is of the utmost importance that we must re-align the curriculum structure for design education in the 21st Century to one of knowledge integration rather than the compartmentalized approach to knowing which still largely dominates the educational process of developing design professionals in many institutions. Bernstein's analysis of the integrated curriculum structure guides my thinking by offering that;

> "....where we have curricula of the integrated type, we will find a shift in emphasis from education in depth to education in breadth or, in less evaluative terms, from content closure to content openness. In order to accomplish integration the relational idea, the supra content concept, must focus more upon general principles. This in turn is likely to affect the pedagogy: it will tend to emphasize ways of knowing rather than states of knowledge."
>
> (Bernstein, 1975: 83)

How then do we go about integrating the 21st Century curriculum for design education? I offer that the integrating process will be almost exclusively premised on collegiality and communication. In this sense I want to look at the broadest view of the terms 'Collegiality' and 'Communication'. Firstly, I am not using the term

'collegiality' in its traditional context to mean only cooperative interaction among colleagues, but I wish to refer to collegiality as including all contributing voices in the educational process, be they teachers, students or the greater community, in fact, anyone who is able to add value to the process of education through their specific points of view and experience.

Secondly, the term 'communication' must be understood to encapsulate all transfer of ideas, whether visually, audibly or physically. It is, therefore, all that is spoken, heard, seen and, if we are sensitively attuned, often also felt.

Bernstein, in pronouncing on the advantages offered by the integrated curriculum, hastens to add that there are certain conditions which must be fulfilled in order for integration to happen successfully. These he lists as;

> "1. There must be some consensus about the integrating idea if it is to work at all.
>
> 2. The idea must be made very explicit.
>
> 3. The nature of the linkage between the idea and the several contents must be systematically and coherently worked out.
>
> 4. A committee system of staff and pupils has to be set up in order to develop a sensitive control on the whole endeavour.
>
> 5. Of greatest importance, very clear criteria of evaluation must be worked out."
>
> (Bernstein, 1975: 84)

In reflecting on Bernstein's list of criteria for the successful implementation of the integrated curriculum above, it becomes immediately clear how important the roles of collegiality and communication are to the process which he describes. To begin with he states that there must be consensus about the integrating idea, consensus which

may only be reached through communication and collegiality. For it is only by inclusion of all the voices that contention may be avoided. There is an important shift here that we must not fail to observe. As I have defined collegiality in the context of this dissertation, the implication here is that consensus of the integrating idea must be reached by, not only the teachers who will implement the curriculum, but also by the students who will develop their own understandings through the curriculum, as well as the community which will be served by the product of this curriculum. It is, therefore, not merely a process of integrating the knowledge content of the curriculum, but it becomes a sociological process of integration by extension. In light of the high impact of design on 21st Century society this process of integration contributes to the feedback loop that informs the ongoing design development which addresses the multi-functional needs of the Age of Design.

Once consensus has been reached on the integrating idea, the idea must be made very explicit. I would venture that the cohesion of integration remains subjected to the onslaught of dynamic forces. Within the curriculum these forces may be the dissenting voices of those who have not fully grasped the reasons for the integrating idea. These dissenters may, for example, include new students as yet unsocialized to the integrated process or those whose dedication to the integrating idea have waned. In order for consensus to be retained it is thus important that the idea is made, and continues to be made explicit. It is, again a task of working collegially and allowing for open and directed communication to ensure that consensus is retained.

The integrated curriculum also remains dependant on the strong articulation between the over-arching idea and the individual contents incorporated into the development of such a curriculum. It is of primary importance that these connections can be clearly drawn and systematically articulated. The connections between them, while made explicit, should also be readily discernable thereby further bonding the several contents to the whole. In this sense I would say that there must be an obvious communication between the contents and the integrating idea of the integrated curriculum.

As Bernstein points out, a committee system of staff and pupils should govern the control of the integrated curriculum. He includes the word 'sensitive' as an adjective to this control. This brings me back to my point about collegiality and communication. Sensitive control can only be achieved through working collegially and with open communication. Integration is, therefore not authoritarian, but arises out of the ability of its participants to hear the voice of the other.

Very clear evaluative criteria are, according to Bernstein, the most important consideration in the successful implementation of the integrated curriculum. Here again the criteria of evaluation must be collegially negotiated and clearly communicated to the participants in the integrated process.

It is clear then that the integrating of the curriculum requires a well developed sense of collegiality to negotiate the optimum dynamics of this teaching and learning process, while simultaneously relaying heavily on the ability to explicitly communicate these dynamics to the participants in this educational endeavour.

We may now have a better understanding of the 'rules' of the integrated curriculum, but what are the consequences of the integrated curriculum for those who participate in it? Let us first look at the role of the lecturer; as we have now discovered the integrated curriculum may be approached from two perspectives. One is that integration may happen within a specific subject that is taught by several lecturers, or integration may occur across different subjects that are taught by several different lecturers. However, the crux of integration, *viz*; the supra concept or integrating idea must be the shared ideology of all the lecturers involved in the enactment of the integrated curriculum. This will also mean that for those teaching on the integrated curriculum, a common sense of purpose will arise out of the shared or cooperative educational task. New relationships, which are based on this commonality, will develop creating a common pedagogy and evaluation system. Based on this

commonality, Bernstein argues that a homogeneity in teaching practice will develop, reducing individual lecturers' discretion in terms of content and how this subject knowledge is transmitted. While this development of homogeneity in teaching practice has clear advantages it must, however, not be at the cost of diversity of experience and perspective.

Another consequence of the integrated curriculum is that because of the commonalties which are inherent in the process, its teaching practice and administration are likely to become highly visible. This indicates a movement away from the 'sacred' status of knowledge often proposed by collection type curricula. As a result of this transparency and demystification of knowing there will be a shift in the pedagogical relationship, where the lecturer is no longer considered to be the source of all valid knowledge, but where the students may begin to make their own significant contributions to the development of knowledge in a collegial expression of learning *with* the lecturer rather than exclusively learning *from* the lecturer.

While the integrated curriculum may appear to be the idealistic utopia for the educational endeavour, there is the aspect of instability which its participants must contend with. As opposed to the collection type curriculum with its clear cut subject boundaries, high levels of lecturer autonomy and specified, predetermined outcomes, the integrated curriculum is subject to the unpredictable. This means that the structure of the knowledge development is open to be acted upon by the participants in the teaching and learning process. As the knowledge develops dynamically in real time, the lecturers need the ability to *"think on their feet"* (Schön, 1983: 68), clearly this requires a vast range of knowledge across the entire integrated subject field. This is not to say that the lecturer must know all the answers, but the lecturer must certainly be in a position to guide the exploration of knowledge toward understanding. While collection type curricula are capable of working even when staffed by mediocre lecturers, the integrated curriculum demands *"much greater powers of synthesis, analogy and far more ability to both tolerate and enjoy ambiguity at the level of knowledge and social relationships"* (Bernstein, 1975: 108).

This is specifically prevalent in the practice of design education, where we are consistently striving to instill in our students the diversity of application of their developed knowledge. As design educators we will constantly be called upon to work dynamically with the knowledge that develops in the classroom, rather than to simply work with a predetermined pocket of knowledge to which we know all the answers. This brings us back to another fundamental aspect of the integrated curriculum, *viz*, that through its practice we may develop, according to Bernstein, *'ways of knowing' rather than 'states of knowledge'*. Here again we can see the direct correlation with Castells' *'Self-programmable labour'*. Students are socialized to work with knowledge in terms of analysis, synthesis and reflection; they are not merely learning facts which in our modern society may be obsolete and irrelevant long before they may be put to any productive use.

Next I would like to explore the impact of the integrated curriculum on the student. As I have already pointed out there will be a shift in the pedagogical relationship between the student and the lecturer. This shift will result in the decrease of lecturer discretion but will inversely significantly increase the discretion of the student. This will result in the student taking responsibility for his/her own learning. We may conclude that the underlying theory of learning will be group or self regulated. This in turn should result in the development of strong horizontal relationships within the student body as the students become bounded by the common task of developing their understanding.

With this change in the pedagogical relationship we may also encounter, what Bernstein terms, the weakened boundary between staff and students. This brings me back to my point regarding the collegiality of the teaching and learning process under integrated curricula. As opposed to the collection type curriculum where the lecturer may be regarded as the gatekeeper of knowledge, under the integrated curriculum the lecturer may be viewed as a guide in the mutual development of understanding.

> "...the teacher, as opposed to being the repository of all knowledge and wisdom, must now facilitate and mediate the educational experience. ...the teacher, now a facilitator of learning, will create relations between learners and facilitators which engender values based on cooperative learning..."
>
> (Department of Education, undated: 12-13)

This change in the ownership of knowledge will also work towards changing the traditional educational identities of lecturers and students, giving credence to the valid contributions which students can make to the educational endeavour. The relaxing of the authority relationship between students and lecturers is also prone to allow students to reveal more of themselves in the public domain of the educational process. While the integrated curriculum cannot ignore aspects of the 'self' of all its participants, students and staff included, it is in the openness of the space created by the shifting pedagogical relationship that lecturers will become aware of their students' thoughts, feelings and values.

Now that we have seen that the integrated curriculum relies heavily on the mutual knowledge development dynamics which exist between students and staff in an open pedagogical relationship, I would also like to consider the influence of the community on this pedagogical process. The contribution of the community to the integrated knowledge is especially important in regards of 21st Century design education. As we have discovered, the integrated curriculum relates to the synergy between the subject components of a learning programme. It also relates to the integration between formal knowledge and what Bernstein calls *uncommon* (informal knowledge) and *common* sense, knowledge of the everyday, day-to-day, community, group, peer and individual. Design education can thus not rely exclusively on what, under a collection type curriculum, would be termed *pure* knowledge. It must draw from the widest possible font of knowing in order to weave together an authentic design education, able to successfully address the diverse requirements of the Age of Design.

It is this pursuit of an authentic design education which in my experience within the public sector of higher education has been the most difficult to achieve. Constrained by the high numbers of underprepared students as a result of the newly massified public education system, the integration of knowledge at the higher education level of design proved extremely problematic. An additional factor which compounded this difficulty was the distinct division between the various components of the design programme. Many of these components, such as history, were outsourced to completely different faculties, making it difficult for students to assimilate this knowledge in relation to their main area of study. While this practice may be viewed in terms of the institutional culture of pursuing efficiency, it did nothing to promote the integration of knowledge and frequently created a vacuum of lecturer non-communication. This failure by staff of different faculties to interact was brought about by time pressures, as well as unwillingness on the part of many lecturing staff to share their expertise beyond the immediate borders of their own faculties.

By contrast the size and focus within the private provider sector of higher education lends itself more readily to the achievement of an authentic design education. Due largely to the predominantly single programme nature of many private institutions, the integration of the curriculum components are less problematic. Staff are more focused on the common good of the programme and compartmentalization is more easily avoided. The size of private institutions and their high levels of market integration and economic awareness also appear to work in their favour. They may therefore appear to be far more adaptive and sensitive to market demands than is currently possible in the public higher education sector.

8. Knowing, Acting and Being

We have thus far developed two theories of the curriculum which, in my view, are essential to improving our understanding of a curriculum most appropriate for design education in the 21st Century. We have considered the curriculum as a blueprint for action, while acknowledging that it may merely be a starting point and that the enacted curriculum may in fact differ from the proposed or intended curriculum. We have also explored the benefits and consequences of the integrated curriculum structure for the development of the future design graduate, accepting that the shift to openness in the educational relationship between staff and student would add to the mutual knowledge development through the inclusion of the student voice in the educational endeavour.

I now want to go further by expanding on the concepts of *'knowing, acting and being'* put forward by Ronald Barnett and Kelly Coates, as forming the desired *"triple engagement"* in education (Barnett and Coates, 2005: 3). They contend that the curriculum for the modern age must integrate these three dimensions of the educational endeavour. Yet, they also make it clear that this integration cannot be total, as factors beyond the educational process, such as government, industry and community exert influence on the curriculum.

But what is an educational engagement with the curriculum? Engagement implies action and action demands actors. The educational endeavour therefore, as we have observed with the integrated curriculum, requires the involvement of the student as much as it requires the involvement of the teacher. Here involvement implies that we must orchestrate the engagement of the curriculum through requirements of student actions. The 21st Century design curriculum must spur students to 'doing' through analysis, reflection and synthesis. Let us then explore the meaning of each of these concepts which Barnett and Coates foreground for us. Lev Vygotsky theorises that *'knowing'* can only be achieved through a collaborative effort between humans;

"Every function in the child's cultural development appears twice: first, on the social level, and later on the individual level; first, between people (interpsychological), and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals. "

(Vygotsky, 1978: 57)

By implication the action of human collaboration, of actively engaging with knowledge is what leads to knowing. What Vygotsky is proposing here is more than just knowing the knowledge, but his reference to 'higher functions' indicates an ability to work with knowledge. In other words the mere exposure to knowledge requires no action on the part of the student, yet knowing becomes an act of engagement. John Biggs adds that;

"Knowing facts and how to carry out operations may well be part of the means for understanding and interpreting the world, but the quantitative conception stops at the facts and skills. A quantitative change in knowledge does not in itself change understanding."

(Biggs, 1989: 10)

This is fundamental to design education, which by its nature is concerned with the ability to make, to devise and to construct. A design education thus becomes contingent on the ability to interact with knowledge, to be defined by that interaction and by extension take ownership of that knowledge.

Barnett and Coates, in their 2005 work entitled "Engaging the Curriculum in Higher Education" define the concept of 'knowing' as follows;

"…. a changing world does not rule out knowledge as such, but it poses questions as to what kinds of knowledge are going to be fruitful in a changing world. It may be that formal propositional knowledge has not yet had its day, but if it is to be retained within higher education curricula it needs to be rethought and repositioned alongside other more practical and personal forms of knowledge. In a curriculum for the

twenty-first century, what matters is the student's own engagements with knowledge – in other words his or her *knowing*."

(Barnett & Coate, 2005: 48)

I contend that knowledge forms the fundamental building block of any curriculum. It is the starting point from which curricula are constructed and, I would venture, the primary consideration in the development of any learning programme. Yet as we have seen in previous chapters of this dissertation, curricula for the 21st Century can no longer merely contend with 'states of knowledge' (Bernstein, 1975) as Bernstein has pointed out, but must shift focus towards 'ways of knowing' (ibid). This approach to knowledge has a significant value for design education. In the changing world to which Barnett and Coates refer the driving forces of education have become the consumer driven market, concerned primarily with the performativities which graduates can bring to the market place. This, as I have pointed out, is especially true for design graduates in the 21st Century. By virtue of the vast field of understanding from which the discipline of design is comprised and must address, design curricula cannot hope to instil sufficient propositional knowledge in the graduate, over the course of a study programme, to viably address market demands.

Furthermore, as the performative requirements of a design professional may change on a day-to-day, problem-by-problem basis, so the shortcomings of a design education based on propositional knowledge alone would soon be evident. Design education in particular, due to its often irreversible environmental footprint must remain responsive to the needs of the economy and of society.

It is for this reason, that the ability to work with dynamic knowledge or ways of knowing has become ever more prevalent in society today. It is the development of this, the ability to interact with knowledge dynamically, which we must pursue through the educational endeavour. If we then subscribe to the philosophy that knowledge is in a constant state of flux (Barnett and Coates, 2005), it is clear that the pursuit of 'states of knowledge' is an essentially futile exercise. In our world, with its constant, high level technological advancements, knowledge has achieved a thus far

unprecedented level of accessibility. Thus the knowing cannot be simply in the knowing of information, knowing must be situated in the personal ability to work with constantly changing information. We may consider that 'knowing' is a matter of students' capabilities in relation to knowledge.

In the words of Barnett and Coates;

> "...a proper understanding of the relationship between student and 'knowledge', at least in the context of higher education, has to be one of personal engagement. A 'knowing' is necessarily a personal knowing: *knowing* is a personal relationship between the person and the intellectual field in question. Such personal engagement can often be enhanced through collaborative endeavours, through collaborative engagement by students acting and working together."
>
> (Barnett & Coate, 2005: 60)

It can now be seen that in our efforts with a curriculum for the 21st Century we must consider how best to address the students' development of 'knowing' rather than their development of 'knowledge'. A stagnated recalling of facts without the ability to interpret this knowledge for diverse situations will no longer suffice.

The next concept to explore is what Barnett and Coates call 'Acting'. In this regard they offer that;

> "..., a changing world both calls for action but renders action problematic. How is action to be evaluated when there are multiple frames of reference at hand? Is it in its effects or the individual's intentions? Action, therefore, deserves attention in its own right. It can no longer, if indeed it ever could, be seen as an adjunct of knowledge, an arena in which knowledge is simply put to work. Again though, it is the student's own actions that are important: not action in a dessicated sense as might appear on the pages of a course proposal but action *in action;* the student's involvements in and her interpretations of her own actions – in short, her *acting*."
>
> (Barnett & Coate, 2005: 48)

If, as Barnett and Coates point out, 'acting' is not merely an adjunct of knowledge, we need to explore this concept in terms of *identity through action*, rather than only as *performance of action*. This, I would contend, is how the term 'acting' has been traditionally interpreted, simply as those activities which graduates could perform based on their learning. Yet, it is clearly more than that when seen in the context of our changing world. 'Acting' has become the platform whereby the student can acquire the deep grammar or in Bernstein's words the 'instructional discourse' of the discipline. In other words, 'acting' affords the student the opportunity of acting out the part or role of the discipline practitioner rather than merely the activity associated with the discipline. They are, in effect, authoring their own identity as a discipline practitioner through the concept of 'acting'.

It is, in my view, therefore an extremely important aspect of the design curriculum for the 21st Century to establish within the educational endeavour the space or opportunities where the 'acting' of the role of discipline practitioner may be explored by the student. I would further venture that we may create such opportunities by situating the students' knowledge development in what Lorrie Sheppard refers to as *"...real world settings..."* (Sheppard, 2000: 17). She explains that students, who are confronted with developing their understanding in relation to the actual settings where that understanding will be enacted, are more likely to make the connections between what they are learning and the application of that learning, than students who confront their studies from an unsituated theoretical perspective alone. If these ways of acting and their associated skills were always implicit in the curriculum, we have now moved into a period where it has become valuable to make these attributes more explicit and thereby bring our graduate to a holistic understanding of their role within their chosen discipline. There are thus distinct advantages for students, who through energy and commitment are able to engage with the role of the discipline practitioner by 'acting the part'. They, therefore become able to 'take on' and 'act out' these intellectual and professional roles through personal involvement with the action. It is this personal involvement of students, in the interpretation of their own actions, which should be our goal. Here the Massachusetts Institute of Technology Epistemology and Learning Group (MIT ELG) offer that;

> "... knowledge is not simply transmitted from teacher to student, but is actively constructed by the mind of the learner... Learners are particularly likely to create new ideas when they are actively engaged in making external artefacts that they can reflect upon and share with others."
>
> (MIT ELG, 1997)

Barnett and Coates point out that, students are also far more likely to develop critical thought and understanding through 'doing'. It follows that the key attributes of design education for the 21st Century which I have already identified, *viz*; analysis, reflection and synthesis are further enhanced by the explicit inclusion of 'acting' in the design curriculum. Here the inclusion of experiential learning in the curriculum for design education may prove highly valuable. Experiential learning is highly suited to the acquisition of practical skills, where trial and error and the opportunity to practice practical techniques related to real tasks is essential.

But perhaps the most radical, and I would argue also perhaps the most important, concept which Barnett and Coates propose is the concept of *'Being'*[3] . I believe that while this idea may be problematic, in terms of the curriculum, that it is a vital consideration of 21st Century education. I would define the concept of 'being' as related to the person that one is. And, yet therein lies the difficulty with 'being'. It is impossible for 'being' to be empirically defined, and yet its impact in a changing world cannot be over emphasised.

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[3] To use an analogy, there is chemistry and there is the work of being a chemist. When we study how molecules are organized or hypothesize about the nature of an unknown element, we employ different kinds of information and skills than those necessary to conduct an experiment or to synthesize a known compound. There is information about the *discipline* of chemistry and it is distinct from information about the practice of being a chemist. We can conduct research in either area, but the types of knowledge and the methods for discovering them are very different. And they have different kinds of value to the field and to others. (Source: Is There a Doctor of Design in the House? An Interview with Meredith Davis by Steven Heller. June 19, 2007)

The qualities of 'being' may include such things as self-reliance, self-confidence, self-realization or self-awareness. These traits most frequently coincide with many of the capabilities that employers now look for in the market place. It is also noteworthy to consider how closely these attributes relate to the 21st Century demand for a 'self-programmable' labour force. I would argue that the acquisition of these traits or the development of 'being' is a fundamental advantage when confronted with the rapidly changing world. It speaks to me of adaptability.

Barnett and Coates offer the following definition of 'being';

> "..., as we have seen and as employers are increasingly noting, a changing world calls for certain kinds of human capacity and dispositions and for self-awareness and self-confidence. The self is implicated in a changing world. No longer can the wider norms and practices be endorsed: individuals have to work things out for themselves in their own situations. Individuals have to become selves, strong, careful, open, resilient and critical selves. Students' *being*, willy-nilly, comes into play.
>
> (Barnett & Coate, 2005: 48)

I want to offer the view that 'being' is intertwined with traits of character. With how one is experienced by others as a person. 'Being' is essentially the set of attributes which a person manifests to the world. In broad terms 'being' could then be said to be 'how' we are as human beings.

The difficulty of 'being', however, lies in how we go about developing it in the student through the curriculum if, as has been suggested, it is essentially transformative. I, in turn, would suggest that 'being' is in many ways connected to the hidden curriculum. It exists between the lines. It may well be that it develops through the student's enthusiastic modelling of their own values and behaviours on the often latent, tacit values of the staff with whom they come into contact. This would suggest that the impact of the curriculum on the development of 'being' can be addressed through the

awareness that staff have of their own values and behaviour as they model those for the students throughout the educational endeavour.

While I have now considered some aspects of the concepts of 'knowing', 'acting' and 'being', I would also like to diagrammatically explore these concepts in terms of various curriculum structures which I have previously encountered. I would like to begin by offering a view of the traditional higher education curriculum with regard to the value afforded to the holistic development of the student. As can be observed in the accompanying diagram (Fig. 10), traditional pre-1994 higher education curricula in South Africa focused largely on the aspect of 'knowledge' development. For this reason the larger circle (K) represents the importance of knowledge. It is also the darkest in colour to illustrate the weight with which knowledge is viewed in traditional curricula. The lighter circle (A) represents the action or level of knowledge application developed by the traditional higher education curriculum. We must keep in mind that traditional curricula have been largely concerned with the pursuit of knowledge for its own sake. Therefore, we can see by the limited overlap between the knowledge and the application that most of the performative qualities of students exposed to this type of curriculum structure are developed outside of the curriculum.

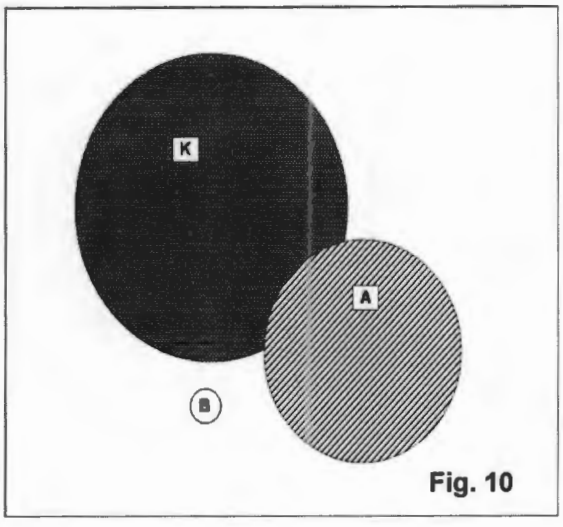

Fig. 10

Even as far back as 1996, an Education Information Centre study critiqued the educational methodology employed in the teaching and learning process of the pre-democratic South African education system;

> "In the old education system only the content of the courses and what the teacher or the textbook had to say was important. Learners received information from the teacher and did not play a very active role in the learning situation. Most of their learning was memory based. Learners were seldom given the opportunity to show what they learned and how to use their knowledge. It was important that learners remembered and repeated everything they learned, and not whether they understood and were able to use what they had learned in different ways or situations."
>
> (Education Information Centre, 1996: 12)

Also note that the small, pale circle (B), representing the development of the student's 'being' enjoys no connection with the aspects of knowledge and application developed by the traditional higher education curriculum. Thus the 'being' is left unaddressed and, therefore unaffected and entirely outside of the evolutionary learning structure. It is also the most unsuitable curriculum structure applicable to the development of design education for the 21st Century, as it neglects the holistic development of students required to face the challenges of an unstable world. I am not using the terms 'knowing' and 'acting' in relation to the traditional higher education curriculum structure, this is intentional, as I do not believe that there has traditionally been any focus on these concepts as they have been described above. Commenting on the traditional approach to teaching and learning De Lisle says;

> "The new curriculum is aimed at transforming the worn out education system of the past. For the most part, students were fed on a meagre diet of passive rote learning and irrelevant facts. The aim is that they should now learn in a critical, active manner, developing relevant, real-life skills."
>
> (De Lisle, 1997: 2)

As higher education curricula became more aware of the impact of market forces in the last quarter of the 20th Century with the commodification of learning programmes, so we began to observe the inclusion of 'life skills' into the curriculum. This feature is strongly articulated in the education policies of the new ANC government of the post-*Apartheid*, democratic South Africa.

" .... teachers are assumed to be facilitators and mediators of learning rather than transmitters of knowledge. As laid down by the South African Qualifications Authority (SAQA), the critical outcomes for learners are:

- Identify and solve problems and make decisions using critical and creative thinking;
- Work effectively with others as a member of a team, group, organisation and community;
- Organise and manage themselves and their activities responsibly and effectively;
- Collect, analyse, organise and critically evaluate information;
- Communicate effectively using visual , symbolic and/or language skills in various modes;
- Use science and technology effectively and critically, showing responsibility towards the environment and the health of others;
- Demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation

(Ministry of Education, 1997: 13)

While I have not changed my views with regard to the fact that curricula at this stage were still largely developing knowledge and application rather than 'knowing' and 'acting', the addition of life skills point to an awakening to the awareness of 'being'. As the accompanying diagram (Fig. 11), of this curriculum structure illustrates, we begin to see a connection of 'being' to the still dominant concerns of knowledge and application. The concept of 'being' remains essentially unexplored, as indicated by its size in relation to the primary aspects of the curriculum. This structure, however, begins to offer a workable option for the general design disciplines. By considering the influence that may begin to transform the student's perceptions of 'self', this curriculum structure, while still vastly lacking in offering an integrated, holistic development of the undergraduate, could stimulate initial access to an understanding of 'being', which students with a natural inclination for distinction may explore within themselves in time.

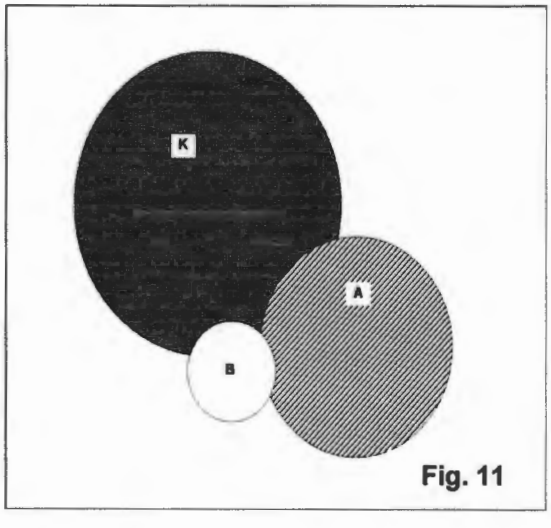

Fig. 11

By contrast to the above examples, Barnett and Coates theorise that an ideal higher education curriculum should address the 'triple engagement' of a holistic approach to student development. It is now that we may begin to use the terms 'knowing', 'acting' and 'being' as they have been proposed before. In the Barnett and Coates model (Fig. 12) the 'acting' is encompassed by the 'knowing' suggesting that this curriculum structure, in terms of content selection and pedagogical approach, directly addresses the student's performativity, or 'acting' in the role of the discipline practitioner. This encompassing would also suggest that the connection between the 'knowing' and 'acting' is highly explicit. The section of 'knowing' which protrudes from beneath the 'acting' is an indication that, as Barnett and Coates have stressed, total integration would be both undesirable and practically unachievable due to external influences which the student must also contend with.

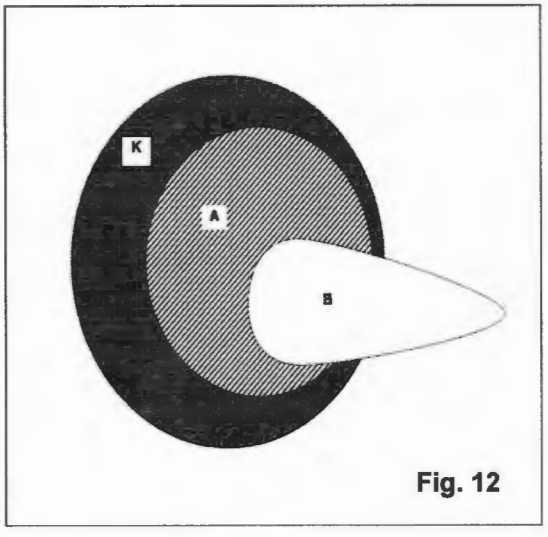

Fig. 12

Here the focus on knowledge has been replaced by a focus on 'knowing'. This shift is achieved, as we have seen, by virtue of the focus on 'ways of knowing' rather than 'states of knowledge', without the addition of overly superfluous content for content sake. Barnett and Coates also speculate that 'being' is influenced more broadly from beyond the curriculum than through an exclusive interaction with the theories of 'knowing' and 'acting' within the curriculum. This can be seen in the diagram, where due to the now explicit awareness of 'being' as a component of the curriculum, it enjoys a proportionally larger presence in this curriculum structure than in those before. However, the external influences remain undefined and, therefore, their impact cannot be directly considered in a structured curriculum approach. A consideration which, I propose is decidedly important for design education curricula in the 21st Century.

It is in the defining of the aspects which influence the 'being' of the student from beyond the curriculum that the FEDISA curriculum structure (Fig. 13) or Starfish Curriculum Structure as I have dubbed it, differs most fundamentally from that of Barnett and Coates' model. As has been expressed through the course of this dissertation, the multi-level demand of our 21st Century consumer driven society requires that design origination happens within the multiplex of considerations. These considerations, when accessed by the design professional reflect the development of 'being' and assists the process of better articulating where an idea comes from. In the curriculum structure evidenced in Establishing a New Provider of Private Higher Education within the Regulatory Framework - Future Excellence Design Institute of South Africa (FEDISA), of this dissertation the expanded components to the FEDISA design curriculum appears to go a long way towards achieving this awareness of 'being' in the design graduate. In practice this means adding a liberal arts component to the design curriculum. Such liberal arts components may cover sociology, religion, politics, economics, literature and philosophy. The acquisition of the deeper understanding of these components may further develop a multi-literate understanding of design and its broader applications, as well as its fundamental purpose and reason for being within the design graduate.

As Freire has alerted us to the importance of community influences on the educational process and Bernstein has pointed to the integration of personal and formal knowledge with both uncommon and common sense, so we can see that there is no escape from the influences which impact the curriculum from beyond its demarcated borders. Influences which strongly include the economic market and it's multi-levelled demands. It is in this realisation that the design graduates must explore their practice, both professionally and ethically.

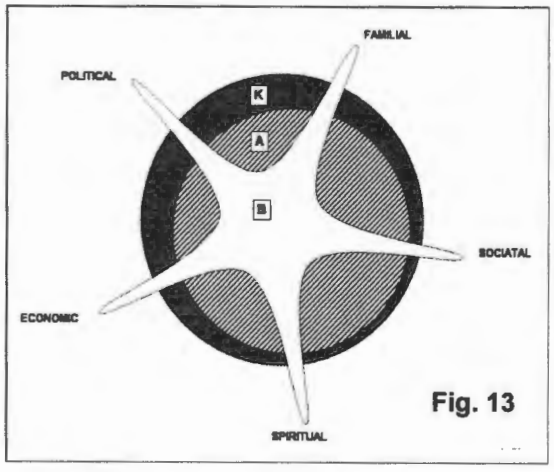

Fig. 13

I propose that (Fig. 13) represents the curriculum structure that is the most appropriate structure in which to develop the

future design professional with the ability to evolve beyond the acquisition of knowledge, and to consistently explore new ways of developing, assimilating and interacting with new understandings of an unstable world. The development of understanding by students of their place in the world, in relation to all other aspect at work in that world, is eased when there is a multi-lateral cognition within the curriculum of those external influences that shape the individual's contextual understanding of the self. Here Ramsden and Entwistle's allusions to '*authentic*' or '*deep*' learning is stressed when they maintain that, *"Authentic learning involves learning that is meaningful to the student and that engages their self and identity"* (in Ramsden, 2003: 88). This coincides with Bernstein, when he points out that through the integration of the curriculum students attain an understanding of the underlying structure of knowledge faster than those exposed to collection type curricula (Bernstein, 1975). By making explicit these aspects of influence that underpin the student's development of 'being', the curriculum structure for 21st Century design education hopes to most broadly access, and influence the aspects of *'knowing'* and *'acting'* within the disciplinary context of understanding.

Note that the diagrammatic curriculum structure presented in Fig. 13 is in a state of flux. The tentacles may grow in number or diminish; they may also grow longer or shrink depending on the strength of influence at a given time.

While it remains impossible to address every aspect of influence which may impact the evolution of understanding in each individual constituent of a programme, the inclusion of such previously extra-curricular considerations is paramount in widening the scope of enquiry essential to the practice of the design professional in the 21st Century's super-complex age. Yet despite all these efforts, Barnett points out that;

> "…. curricula will be unlikely to yield the human qualities of being that the current age of super-complexity requires."
>
> (Barnett, 2000: 255)

It may also be relevant here to reflect on the design education curriculum for the 21st Century as being situated in the "Interpretivist research paradigm" (Mc Kenna 2003: 218) which shares many aspects or traits with the appropriately structured design curriculum illustrated above. Foremost the desire to understand the world and its various constructs and further to develop the interpretive abilities that enable a globally beneficial interaction with the world and the harmonious existence founded on knowledge within it.

The Starfish curriculum can thus be experienced as a tangible process by the student able to make the explicit connections between the constituent parts as they impact on the ideal levels of expected performativity, as opposed to the more traditional curricula with their lack of truly invested activity directly related to the largest proportion of their knowledge content. Seen against this background it is clear that the engagement with a Starfish Curriculum Structure will be far more resource intensive than the other structures discussed here. It is, however, also equally evident that the benefits of this Starfish Curriculum Structure for design education will far outweigh the costs of time and resources required for its implementation.

9. Developing Critical Reflection in the 21st Century Design Curriculum

I have, earlier highlighted the concept of *reflection* as part of the design process appropriate for design in the 21st Century. I would now like to expand on some further notions of reflection which I consider pertinent to both the process of design and also to design education.

It is my contention that especially in design education there is a need to make the process of reflection explicit, not only for students developing their understanding in these fields, but also for the lecturers guiding these explorations. Ronald Barnett and Kelly Coates appear to share my concerns regarding the continuing commodification of higher education curricula by suggesting that;

> "...the contemporary drive to urge curricula in higher education more in the direction of skills, while laudable in some senses, is running the risk of falling well short of its target. The result may be a 'performativity' in which skills are shorn of reflection,..."
>
> (Barnett & Coate, 2005: 63)

Why then this emphasis on reflection in education and more specifically in design education? Firstly, the process of reflection allows us to draw upon, and further develop, our repertoire of experience, memories and theories on which we base the execution of our practice.

Secondly, we have become aware of the ethical need to reflect on the global impact of design in the 21st Century. These ethical considerations may range from the size of our carbon footprint on the environment or our use of non-renewable energy sources to the exploitation of child labour in developing economies.

In order to address the concept of reflection in design education I want to look at three different types of reflective practice which I believe are key factors in the development of design graduates for the 21st Century. These include reflection-in-action, reflection-on-action and critical reflection. I also want to develop the theory that much of the development of reflective practice in design education will happen by virtue of the further understanding, by practitioners, of the hidden curriculum.

To start with I want to look at the two concepts of reflection which Donald Schön proposed in his 1983 work entitled *The Reflective Practitioner*. While these concepts are not necessarily new, Schön offers an analysis of these 'taken-for-granted' practices. He calls these 'reflection-in-action' and 'reflection-on-action'. Both of these processes will be familiar to designers and design educators alike, as they are employed throughout the daily practice of both these spheres of endeavour.

Reflection-in-action can, according to Schön, be equated to 'thinking-on-our-feet'. This means that while we are embroiled in the action, we must think about useful ways of coping with the immediacy of our situation. This is familiar ground for practitioners, and I refer here again specifically to design professionals engaged in design education. Through the process of developing the students' understanding in the field of design there will be many an occasion where educators will be confronted with questions and situations which require an immediate address. Here the practitioner is called on to think or reflect in the midst of the action. It may be during a demonstration of our practice or it may take the form of an unexpected question during a discussion session. Schön proposes that the ability to function astutely in these high-pressure situations is premised directly on the establishment of a repertoire of images, ideas, experiences and theories upon which the practitioner can draw in such unfolding instances. He points out that;

> "The practitioner allows himself to experience surprise, puzzlement, or confusion in a situation which he finds uncertain or unique. He reflects on the phenomenon before him, and on the prior understandings which have been implicit in his behaviour. He carries out an experiment which serves to generate a new understanding of the phenomenon and a change of the situation."
>
> (Schön, 1983: 68)

I want to focus here on the notion of 'prior understandings which have been implicit in his behaviour.' This clearly points to a 'sedimentary knowledge'[4] which may have been constructed over time and from various sources. It is important to consider that the ability of thinking-on-one's-feet or reflection-in-action is not exclusively founded on subject specific knowledge or know-how. It also entails the ability to perform under pressure, to make lightening-fast, informed decisions, but more than this, it requires the ability to accept that whatever solutions are proposed in this situation should be considered in an experimental light. We may conclude that reflection-in-action is a facility for 'getting by' in the moment.

Reflection-in-action, while a highly desirable trait of character must go hand-in-hand with an acceptance that further reflection and experimentation may be required to more constructively develop solutions for the problems addressed in action. Clearly, reflection-in-action deals with the ability to work productively within a tightly framed situation. The ability to reflect-in-action may therefore be considered to be, not so much a realisation of what we know, as it is the realisation of how astutely we can make the connections between our sedimented knowledge and the situation before us. Schön concurs by stating that;

> "When a practitioner makes sense of a situation he perceives to be unique, he sees it as something already present in his repertoire. To see *this* site as *that* one is not to subsume the first under a familiar category or rule. It is, rather, to see the unfamiliar, unique, without at first being able to say similar or different with

[4] Bernstein points out the fundamental anomaly of trainability. Trainability implies the capacity of the learner to orientate him or herself meaningfully towards new contexts and forms of knowledge. Yet this ability to orientate oneself meaningfully rests upon previously acquired knowledge and skills, upon a pedagogic past, and a specialised identity. In other words, to orient oneself meaningfully towards the future, one requires a 'voice' that has been specialised in the past. Quoted in Ensor 2003.

respect to what. The familiar situation functions as a precedent, or a metaphor, or... an exemplar for the unfamiliar one."

(Schön, 1983: 138)

If, therefore, reflection-in-action is subject to the lightening fast linking of various elements of understanding under pressure, it must be accepted that an education steeped in the ability to integrate various concepts into a comprehensive whole may act as the catalyst for the connective agency of design. It is, thus also no small coincidence that the integrated curriculum structure, with its' inter and transdisciplinary constructs, should be the most appropriate structure for design education. As we strive to achieve this integration of knowledge in the design graduate it becomes ever more evident that the ability to draw diverse concepts together in the moment lies at the heart of design practice. This drawing together will, in good practice, include the broad spectrum of concepts which, as I have pointed out, will be based both on sedimented or prior knowledge as well as the instant understandings developed in the moment.

The second of Schön's reflective concepts is that of reflection-on-action. This is reflection after the fact, or indeed after the action. Reflection-on-action allows for thinking about what we have encountered without the pressures of reflection-in-action. Once the practitioner is removed from the direct enactment of the situation, it may be easier to question the reasons for the responses applied to a situation. It may also be conducive to the further development of solutions to be removed from the constraining pressures of time vested in reflection-in-action. It is further often also the point at which we are best able to consider the ethical implications of our actions, which may have been over-looked in the immediate pursuit of workable solutions to our design challenges. By reflecting-on-action we are able to formulate our response *over* time rather than *in* time. We are also able to move away from thinking about our response and return to it later, or even repeatedly. This is not a luxury shared by reflection-in-action which calls for an immediacy of reflective practice. Yet, it is through the reflection-on-action that we build and expand the

repertoire of sedimented knowledge, of ideas, experiences, images, metaphors, memories and theories on which we draw in action.

The third concept of reflective practice is what Steven Brookfield terms critical reflection. Whereas reflection-in-action and reflection-on-action may be viewed as enacted practice, or what practitioners do, critical reflection by contrast is largely ideological. Interestingly, the *Facilitatory Handbook on the Interim Registration of Whole University Qualifications* describes the purpose of higher education curricula in the 21st Century as follows:

> "... should develop attitudes of critical enquiry and powers of analysis; and they should prepare students for continued learning in a world of technological and cultural change."
>
> (NCHE in SAUVCA, 1999: 7)

But what is critical reflection and how is it distinguished from the concept of reflection in general use? According to Brookfield, speaking in the context of education, reflection becomes 'critical' when it has two distinct purposes; a) we become aware of the power relations involved in the educational process and its interactions between student and teacher and; b) it allows us to question assumptions and practices, which although often long held, negatively undermine our lives as educators (Brookfield 1995: 8). I would like to draw immediate parallels here between how Brookfield views critical reflection in education and how it may be seen in the practice of 21st Century design.

Following Brookfield's view, critical reflection in essence is about democracy. It is about working democratically with students in the educational process, but it is also about the democracy of design and how it impacts the world in the 21st Century. Just as we become aware of the power relations between students and teachers, so I would suggest that 21st Century design graduates should become aware of the power relations between design and the environment. Or put differently, between the

practice of design and the impact of design on our changing world. Brookfield's second point, that critical reflection allows us to question the assumptions and practices which undermine our lives as educators, becomes equally applicable to design in the 21st Century. While design has always challenged the assumptions we have held of how things should be in the world, the added dimension for critical reflection in 21st Century design now allows for a questioning of those assumptions and practices which *undermine* our lives as designers and by design.

It is for these reasons that I propose the inclusion of critical reflection into any 21st Century design education programme. Through an awareness of Brookfield's notions of becoming critically reflective in teaching, I would go as far as to say that we may sets one curriculum apart from another.

As we have seen, design has become a very powerful commodity in the 21st Century. Through design we are able to change the lives of people. In our vigorously consumer driven economies design increasingly intensifies its grip on the market place. But if all is not well, we must begin to question our assumptions of the good of design. We can no longer afford to exclude the critically reflective practice from our design education curricula? For as Brookfield points out;

> "One of the hardest things teachers have to learn is that the sincerity of their intentions does not guarantee the purity of their practice. The cultural, psychological, and political complexities of learning and the ways in which power complicates all human relationships (including those between students and teachers) mean that teaching can never be innocent."
>
> (Brookfield, 1995: 1)

Similarly the practice of design can no longer be viewed as innocent. As Papanek stated in the early 1970's, the sole purpose of design was for the improvement of the human condition, and yet we can now witness how design has gone too far in its pursuit of the betterment of the human condition. So far in fact, that we are today,

thirty-five years after Papanek's statement, facing issues of global warming, dwindling non-renewable energy resources and rampant poverty.

So where do we, as design educators for the 21st Century, begin to affect a change in how the design graduates, which we now produce, view their practice in a changing world. Brookfield suggests that the critically reflective practice is premised on our ability to hunt the paradigmatic, prescriptive and causal assumptions which we hold of the world and our place in it. For instance, we may hold the paradigmatic assumption that since design is for the betterment of the human condition, it is, therefore, good without question. Prescriptive assumptions, by extension of our paradigmatic assumptions connect us to our expectations of what should be happening in certain situations. If we believe that all design is for human betterment then the impact of design should be welcomed by all. Causal assumption, according to Brookfield the easiest to identify, are the assumptions we hold of the effects of our actions. They are the expected results of what we do, for example, if we spend more time developing design solutions, these solutions will be better than any devised quickly. It is an easy task to notice when things do not turn out as expected.

Brookfield goes on to show the importance of the critically reflective process by stating;

> "One way to demonstrate the benefits of the reflective habit is to point out what happens when it is absent. Without this habit we run the continual risk of making poor decisions and bad judgements."
>
> (Brookfield, 1995: 3)

Design fraught with poor decisions and bad judgement has engaged us in an ever tightening spiral of inevitable self-destruction. With the powerful impact of design in the 21st Century it is clear that design education must be invested with a sense of conscience and with ethical responsibility. Without which we may well continue to make poor design decisions and effect bad judgement. It should become apparent

that as design educators, our sole purpose in the development of our students' subject knowledge cannot simply be to invest the design curriculum with the performative skills required to generate design solutions of functionality. Design solutions devoid of ethical responsibility may be very limited solutions indeed.

When Barnett, in Supercomplexity and the Curriculum points out that;

> "Teaching produces the capacity of the students themselves to contribute to supercomplexity. It gives them the capacity to be inventive, courage to be iconoclastic and daring to be bold in their formulations of ideas."
>
> (Barnett, 2000: 162)

I want to concur that teaching must do all these things, but teaching for the 21st Century must also do more. By instilling the design curriculum with the critically reflective practice we may add a further dimension to the development of our design graduates. As design educators for the 21st Century we must confront our own long held assumptions in order to model the process of assumption hunting for our students. But what then, if the unearthing of our long held assumptions is such a complex endeavour, would the benefits be of including the critically reflective practice in design education? Brookfield contends that our actions will be informed through the careful and critical investigation of our own assumptions. Through critical reflection we will be able to explain and justify these actions to ourselves and others. This is certainly a crucial consideration in the practice of any 21st Century design professional. If we agree that design is concerned with the constant pushing of the envelope, Barnett's iconoclast will constantly be required to justify his actions. It is this justification of informed action which we must see as the added dimension to the design curriculum.

It is also here that the true benefits of multi cultural staff and a diverse student body, together with the inherent dialogue they bring, become evident to the process of design education. It becomes in essence a necessary component of reflection and

adds to the investigation and exposing of paradigms which are culturally coded and specific, and which in a totally homogenous environment may otherwise never be accessed.

As Brookfield points out;

> "An informed action is one that has a good chance of achieving the consequences intended. It is an action that is taken against a backdrop of inquiry into how people perceive what we say and do."
>
> (Brookfield, 1995: 22)

But what can we, as educators, offer in terms of tools for the investigation and instillation of the critically reflective practice? Tools that will be as applicable to our students practice of design as they are to our own practice as design educators. Brookfield theorises that the ability to see things from a variety of perspectives is central to the reflective process, that the strength of critical reflection lies in the ability to see our own experiences through the eyes of other. He offers what he refers to as the *"Four Critically Reflective Lenses"* (Brookfield, 1995: 29) through which to gaze at our own practice in the development of the critically reflective ability.

He speaks of our Autobiographies as Teachers and Learners, as a way of seeing our personal experiences as both teacher and learner through the eyes of others, drawing on this self-reflection to become aware of the paradigmatic assumptions and instinctive reasonings that influence our daily actions. As educators often trained in, and working for the traditionalist institutions we may be unaware of our own paradigmatic assumptions, having never considered questioning the accepted norms of the educational function which have so long been instilled in us. It is naturally not an easy leap to make as our own assumptions and instinctive reasonings are grounded in our daily interactions, our cultural codes, themes of ideology, hegemony, etc., in the people we surround ourselves with and in the paradigmatic structures of our lives. We are required to interrogate our belief systems and

embedded views enacted over the course of our lived experience. Coupled with the fear of change these assumptions are often perpetuated in order to side step the inevitable action which critical reflection may require. For design students on educational programmes autobiographies are authored in ways reflecting our own. Students too, must confront their own paradigmatic assumptions and may also experience fear of the inevitable changes these new views may require. It is in the understanding of these shared experiences that we become aware of our actions and influences in a hegemonic process.

By seeing ourselves through our student's eyes, embroiled in the existent power relations of the educational process we become aware of the impact of our words and actions on our students. Brookfield points out that our actions are frequently misinterpreted by our students. Our words convey unintended meanings and we are viewed in terms of us and them. He speaks of building trust relations with our students, which we can only attempt once we understand how our words and actions are experienced in the educational context. Here issues of trust may be experienced on vastly different levels by students of diverse ethnicity, gender or sexuality. It, therefore, is no quick fix solution on the road to critical reflection but rather an ongoing process to be picked away at over time. Brookfield acknowledges that the process can be lengthy when he says;

> "Coming to trust another person is the most fragile of human projects. It requires knowing someone over a period of time and seeing their honesty modelled in their actions."
>
> (Brookfield, 1995: 26)

This is also what the 21st Century design curriculum must create in its graduates, the ability to trust and work towards developing and earning trust through their practice as design professionals. As I have previously pointed out, the discipline of design requires a different hegemonic response than the traditionalist classroom power relations so often encountered. Trust and honesty are built through the collegial interaction between the teacher and the student in the pursuit of design solutions.

The unfortunate reality, however, is that traditional educators often assume that time is a luxury that teachers just do not have and question the true extent to which the trust relationship can really be enacted. This assumption prevents educators from working for educational improvement from within their classrooms. The consequence of this view is that;

> "South Africa's inability to generate an economic growth rate to sustain all of its redress needs is largely due to the lack of relevant skills... [the] present education and training system is designed to meet the needs of an outdated and narrowly Taylorist[5] specification and this renders the economy incapable of competing with workforces that are trained to be 'self-directed, innovative and reflective'."
>
> (Mahomed, 1996)

By focusing on our colleagues' experiences we are able to see our practice through the added dimension of shared experience. We may be confronted with aspects of our practice hidden from view, but illuminated through the experiences of others following a similar or even vastly different path to our own. Our colleagues' experiences may allow us to see our own experiences of the educational process from the multiple perspectives which Brookfield holds as the key to critical reflection. We may find new dimensions added to our personal views of the situations which we encounter in our classrooms. This shared experience may add great value to our teaching practice by exposing us to wider interpretations of the teaching process. It may offer shared insights into universally experienced problems and may in some small way bring us to our own 'AHA!' moments in our practice where many times we may not see the wood for the trees.

> "Participating in critical conversation with peers opens us up to their versions of events we have experienced."
>
> (Brookfield, 1995: 35)

[5] Frederic Winslow Taylor, (1856-1915) was one of the first to attempt to systematically analyze human behaviour at work in order to create a science of management.
Source: http://en.wikipedia.org/wiki/Taylorist.

Much of what may be shared by colleagues could prove to conflict with our personal assumptions as teachers, as much as such conversations among design professionals may illuminate conflicting visions. Herein lies the true value of the critical conversation, to share a view of honesty and support, an insight which is critical, but does not criticise. A view which says 'this is my experience, can it assist you to improve your practice?' Here we can again reflect on Brookfield's views of hunting the assumptions by which we often unwittingly live. The assumptions which might well influence our views of the value of the critical conversations shared with our colleagues and their impact to our personal practice. The importance here is, of course, that we are actually hearing what is being offered as both constructive and critical.

As a fourth perspective on critical reflection Brookfield offers theoretical literature, which may afford us multiple interpretations of often familiar situations and connect our lived experiences to the broader subject discourse. We are allowed through the theoretical literature to examine our own experiences through a net cast most widely to include global perspectives and take from these writings that which may best contribute to our ability to critically reflect on our practice. Brookfield says of the value of theoretical literature in developing the ability of critical reflection that;

> "Theory can help us "name" our practice by illuminating the general elements of what we think are idiosyncratic experiences."
>
> (Brookfield, 1995: 36)

Yet, it is even more than the ability to put a name to our experiences that is the value of theoretical literature, it is the realisation that much of what is happening in our classrooms and in our practice is also happening elsewhere. That many of the difficulties experienced in the educational process are not of our own making but are rooted in the traditionalist paradigms of the educational process. Theoretical literature allows us to realise that we are influenced by the structures and will of society as much as our students are influenced by these wider concepts.

However, in becoming critically reflective teachers we must bear in mind the multiple perspectives from which Brookfield holds we should interrogate our practice. He concedes that critically reflective teachers recognise that they can never achieve 100% teaching perfection due to the diversity of student groupings but we must not underestimate the value of listening to our students and critically reflect on what they have to offer. As we have discovered, the 21st Century process of education can no longer relay on the traditionalist view of teaching as a one-way street. Attention to 'seeing my practice through student eyes' and a focus on being 'at one with the students' can enhance the trust relations established in the classroom and give rise to an intended democracy as a way to achieve the desired evolutionary process of our teaching and of our 21st Century design graduate.

The value of what the student brings to the process; especially with regard to studies in the design disciplines has much to offer for the improvement of teaching and learning as a whole. The 'coming-to-understanding' is no longer confined to the student developing appropriate skills in their chosen field of education; it is shared by the teacher's 'coming-to-understanding' of the new pedagogical process which should be enacted in every 21st Century classroom.

But, critical reflection is also a practice of constant enquiry into how I, as a teacher am doing in the view of my students. Brookfield writes that,

> "It is the nature of the reflective process for us always to be evolving"
>
> (Brookfield, 1995: 42)

Herein lies the true value of critical reflection for the practitioner; the ability to question the practices and processes of which we are a part and the power to effect changes to existing situations continually. Yet, ultimately I would propose that critical reflection is grounded in the multiplicity of perspectives, in the ability to allow different points of view to permeate our own. It is about acting ethically with the powers that

we have developed. In essence, it is about the ability to act democratically towards others while considering the impact of our actions as embodying a more far reaching consequence than may be immediately obvious.

As we have moved from concrete subject content to ideology, so the boundary between the concrete and the conceptual has also blurred. Much of the translation of ideology is not embedded in our conscious actions, in what we say and what we do as it is in the subtle nuances of whom or how we are as educators. I will call this the extended hidden curriculum. Whereas Philip W Jackson identified the structuring and organisational characteristic of the hidden or implied curriculum in 1968, I would suggest that especially in design education, students will tend to model their practice on that of their educators. And, while we may continue to teach our students the processes and practices of design in order to develop their design performativity for an ever expanding consumer market, it is the ideology of critical reflection which will largely be transferred to our students through the extension of the hidden curriculum. While most of this ideological perspective may never be committed to paper or be encapsulated in the curriculum we may well find its impact permeating our educational process of design through how our actions and attitudes as lecturers are interpreted by our students in this unstable world. While we have become aware of the closeness with which we are watched by our students, it is in the way we model our behaviour as design professionals for our students that will see the most acute translation of the democracy of design, allowing the design graduate of the 21st Century to grapple with their own assumptions of their practice in a design hungry world.

10. Conclusion

Design is as old as humanity's history itself. From the moment that man turned his hand to 'making' we have devised artefacts for everyday use, or as Papanek pointed out, for the good of humanity. Whether their purpose was ritual or functional, man's ingenuity found an outlet in the act of 'making'. As fathers passed their knowledge to their sons and mothers to their daughters, so design education was born. We have come to know this earliest activity of design as craft, functional goods with the highest level of personal connection. Goods produced by hand, executed with pride, and always created with purpose as is evidenced by this hand-carved Ashanti stool (Fig. 14). To this day craftsmanship remains a highly valued commodity, but it is a dying art. Unable to sustain the global demand for personalised artefacts, craft has ebbed to a trickle by comparison to the mass produced artefacts of the 20th Century and is now found almost exclusively in country markets and tourist curio shops. I would, therefore, equate all pre-industrial revolution 'making' with craft.

Fig. 14

The industrial revolution removed craft from peoples' hands and embedded 'making' in mechanisation. Design no longer needed to be 'good' or human so long as it addressed the functionality of its purpose. This post 19th Century massification of artefacts also moved design away from localised communities and established the global reach of design. Our design development throughout the 20th Century expanded exponentially, driven ostensibly, by the concept of human betterment, but driven essentially by rampant capitalism. A capitalism which, while generally understood to be an economic and social system based on the private ownership of land, goods and services and driven by

Fig. 15

a market economy, has evolved into an insatiable consumption of new design products. This consumption of design has remained largely unfettered by the long term consequences of these exploitative actions. The Wassily chair (Fig. 15) above is another good example of such an enduring consumable artefact of the modern age. Now in its ninety-third year of production there appears to be no end in sight of its functionality, and while this pursuit of capitalism also drove design in the South African educational context, so design drove capitalism the world over by the turn of the 20th Century.

We were thus placed on an educational path for design studies largely devoid of the consideration of the ethical consequences of this unbridled consumerism. As we stand at the onset of the new millennium, humanity is awakening to the consequences of its actions, consequences both for communities and the environment. We enter the 21st Century aware of our impact on the planet through design. Through this awareness we can, as design educators, no longer stand by and create another generation of design professionals deluded by their own actions. We have seen that through our educational endeavours we may affect a far reaching difference in the approaches our graduates apply to their practice and interactions with the world. We have moved our artefact 'making' from craft to mass production, and it is this mass production which we must now temper with an ethical focus for the 21st Century of design.

Fig. 16

"..., the world as a whole is facing the need for thoughtful consideration of how we can leave behind more than we take away, supporting sustainability of what is precious, finite and unusual in our environment. You

> will be the generation to take on these issues and the entire profession is excited about the opportuny these challenges provide."
>
> (Grefé, 2003)

Technical competence cannot be seen as a sufficient outcome or achievement of the design education process. The acquisition of technical skills is only the foundation of the design process and we must, therefore, move our design graduates beyond the point of performativity without reflection. To illustrate this notion the Zulu Mama chair (Fig. 16) by South African industrial designer Haldane Martin is included here. Showing how the understanding of reflective practice may enhance our 'making' without detracting from the aesthetics of 21st Century design.

For this reason, I have focused this dissertation on what the curriculum is, to foster an understanding of this seemingly foundational aspect of education, yet it is often a lack of understanding the founding concepts of any endeavour which leads to difficulties in its future progression. I have attempted to illustrate the changing application of education and specifically ways in which to approach design through understanding its ethical responsibilities in the 21st Century. Throughout this dissertation I have driven at the importance of the hidden curriculum, not only as a subliminally structuring concept of the organising structure of education, but in the way that we as educators are closely watched by the students in our classrooms. I have considered the importance of every nuance of education and how an awareness of this subliminal impact exerts influences beyond our imaging's on our students through the modelling of our practice as educators. We cannot expect to develop awareness in our students of their environmental responsibilities, if we are not seen as subscribing to those same responsibilities, by the students in our care.

Through the course of this dissertation we have moved from understanding the concrete aspects of the curriculum as a blue print for action to an understanding of the design attitude of critical reflection and its impact on 21st Century design. We

have seen how we may assemble the components of learning for an integrated structure, but we have also seen how through our actions, values, beliefs and attitudes we may develop the changes in our students that will truly shape the world. Ironically these most valuable characteristics will develop in our students through their keen observation of our practice as educators. Most of these influencing aspects will never be committed to paper, while in curricula, which remain unaware of these significantly impacting characteristics of the educational process, they will remain hidden from view. They, however, will not disappear and they will still impact the students' development of character, but they will do so in an arbitrary, undirected way.

What then will it require from us to be 21st Century design educators? Knowledge of our subject fields is a given. And yet, how we understand and interpret that knowledge for application in the 21st Century will be directly premised on our understanding of the 21st Century itself and our place in it. As we become aware of whom we are as educators, so we may develop our students' awareness of their roles in the educational endeavour, engaging our students in enquiry into their world, in an enquiring, non-prescriptive manner. Our imperatives are to know what the curriculum is and how, why and by whom it is influenced. We must learn again to value all knowing, whether it be formal, non-formal, in-formal, common or uncommon sense. And we must remember that as educators we develop more than knowledge, that through critical reflection we may develop a new democracy with our students, our communities and our world.

Our goal is ethical performativity enhanced through critical reflection and democracy, both for our students and ourselves. As 21st Century design educators we must reclaim the ability to be astounded by the realisation that our views, beliefs, values and attitudes impact our students through an extension of the hidden curriculum which our daily actions embody.

We can now see that just as the authentic design process is concerned with action, so the enactment of a curriculum for design education in the 21st Century is equally concerned with action. It is all about doing. Whether it is our *understanding* of the curriculum as a blue print for *action*, or the *integrating* of the curriculum, or the *engaging* of the curriculum through the *acts* of *acting, knowing* and *being*, or even if it is through *becoming* critically reflective. All these concepts are concerned with *action*. The 21st Century is concerned with what we and our graduates can *do*. The era of educational passivity is over. Words like *performativity* have taken on the guise of the now expected educational outcome. The world has *moved* to *verbs,* words of *action*, *performance* and *doing*. Accessing knowledge is no longer enough. *Actions* with knowledge are the new cornerstone of design. *Analysis, synthesis* and *reflection, thinking* on our feet, these are the *expectations* of a society in *motion*, of a consumer *driven* market. As educators we must answer this *call* to arms, *arming* the design graduate with the performative qualities for *functioning* successfully in a *demanding* world. If it is the fundamental characteristic of design to continually *challenge* the assumptions we *hold* of our world about how things are or should be, then the fundamental purpose of 21st Century design education must be the *embedding* of the performativities in design graduates which will engender this *questioning* spirit. In this way we may move our design graduate closer to the point of articulating the origin of original ideas while understanding the consequences of their design actions.

It can be observed that in the pursuit of quality higher education provision in the 21st Century in post-*Apartheid* South Africa, the role of the state's regulatory framework appears to be the levelling of the playing field for providers, both public and private. The quality assurance measures are primarily focused on institutional organisation and systems control, ensuring viability and sustainability for the protection of students participating in the higher education process. A second aspect of quality provision as indicated by the regulatory framework is the focus on outcomes, what graduates are able to do in terms of their articulation into the economic sphere of the country and the world. What is less evident from the study of the regulatory framework as it currently exists is governments hand in the achievement of this quality education in classrooms.

It is here that the institutional pursuit of excellence in education is paramount. While outcomes as promulgated by the Standards Generating Bodies (SGB's) within the regulatory framework for higher education may be achieved or even surpassed, these standards are achieved in classrooms. The view that is taken by institutions of the pursuit of excellence is where the true difference in quality provision is situated.

Furthermore, global economic forces now prevalent in the New South Africa due to the opening up of international relations after the advent of democracy are also beginning to play an important role in the pursuit of quality education provision. As with any consumable product, educational institutions must continually strive for the betterment of their offering across all spheres of the educational endeavour, *viz*; programmes, facilities, academic capacity, research profile, etc. As the South African society gains sophistication its ability to seek out excellence will become a major motivator for educational excellence in an open market where providers of higher education, both public and private, are judged on the capacity to provide the best possible education available.

While the state continues to measure excellence in terms of institutional viability, access and redress, the risk of dragging 20th Century educational baggage into the new millennium remains a constant threat to achieving educational excellence. The 21st Century design curriculum requires consideration of multi-functionality of both labour and design in order to address the fast changing market requirements for flexible design practitioners. These practitioners will only develop from more fully rounded students with reflective and analytical abilities so as to be better equipped, not only for the labour market, but also climate change and related ethical consideration (both absolute and perceptions of the consumer). These holistic considerations and performativities will shape the kind of learning and ethics which providers of higher education must instil in the design graduate of the 21st Century.

In order for the state to achieve its goals of transformation, job creation and international competitiveness, as well as economic development, it will need to consider the innovations and advancements presented across the spectrum of higher education provision. Both public and private providers of higher education may offer direction on the development of guidelines which move beyond the viability and administration of institutions. In this way the regulatory framework for higher education may be expanded through the assimilation of curricula knowledge which may be shared and promoted by the state in a more thorough pursuit of educational excellence than currently exists.

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12. List of Acronyms

ANC	African National Congress
CATE	Colleges for Advanced Technical Education
FEDISA	Future Excellence Design Institute of South Africa
CHE	Council on Higher Education
DoE	Department of Education
HEQC	Higher Education Quality Committee
NCHE	National Commission on Higher Education
RDP	Reconstruction and Development Programme
SAQA	South African Qualifications Authority
SGB	Standards Generating Body

13. List of Figures

Figure 1:

Dedon "Obelisk" Range of multi-functional outdoor furniture manufactured in Germany by former professional Bayern Munich footballer, Bobby Dekeyser.

Figure 2:

Christian Dior's "New Look" 1947 Corolle Line, Copy right; Association Willy Maywald – A. D. A. G. P. Published in Icons of Fashion – The 20th Century,

Figure 3:

Samsung P910, inspired by Samsung innovations, the P910 puts the DVB-H solution in your hand for audio-visual entertainment that travels light and loaded. This mobile boasts DVB-H reception for mobile TV with EPG (Electronic Program Guide) support with a 262144 colour 2.2'TFT QVGA Swivelling Screen. A built-in 1.3 Megapixel rotating CMOS camera, audio player with dual speakers for stereo sound and internal & external memory to make it one of the most complete communicators on the planet. Samsung's solution to your digital mobile content needs, the P910 brings slim to mobile TV.

Figure 4:

The Juicy Salif is a juicer designed by Philippe Starck in 1990. It is considered an icon of industrial design that has been displayed in museums such as New York's Museum of Modern Art. Originally, it was inspired by squeezing a lemon over a squid in a sea food restaurant, but many observers think it looks like a spider. It is manufactured by Italian kitchenware company Alessi. Its diameter is 14 cm, height 29 cm, and it is made from cast aluminium and polished.

Figure 5:

Cover of Design Indaba Magazine 1st Quarter '07.

Figure 6:

"Blikkies Dorp" private dwelling on Ocean View Drive, Sea Point, Cape Town, South Africa.

Figure 7:

My own diagrammatical representation

Figure 8:

My own diagrammatical representation

Figure 9:

My own diagrammatical representation

Figure 10:

My own diagrammatical representation

Figure 11:

My own diagrammatical representation

Figure 12:

My own diagrammatical representation

Figure 13:

My own diagrammatical representation

Figure 14:

Asante (or Ashanti) stools indicate status, power and succession of chiefs and kings. Carved from single blocks, Asante (or Ashanti) stools traditionally have crescent-shaped seats, flat bases and complex support structures, which exist in many designs with symbolic meaning. Most had specific names and designated users. Asante stools are spiritual as well as practical. They were understood to be the seat of the owner's soul and when not in use were leaned against a wall so that other souls passing by would not settle on it.

Source: http://www.africaguide.com/culture/tribes/ashanti.htm

Figure 15:

The Wassily chair, also known as the Model B3 chair, was designed by Marcel Breuer in 1925 while he was head of the cabinet-making workshop at the Bauhaus in Dessau, Germany. The chair was revolutionary in its use of materials (bent tubular steel and canvas) and methods of manufacturing. The Wassily chair, like many other designs of the Modernist Movement, continues to be mass produced today.

Source: http://en.wikipedia.org/wiki/Wassily_Chair

Figure 16:

Called the Zulu Mama chair, it was designed by a South African industrial designer Haldane Martin. The basket seat is made out of multi-coloured plastic strips derived from recycled milk bottles, woven by women from the township. The frames, made from 100% recycled stainless steel, provide work to a local business that operates a stainless steel bending machine to produce them.

Source: http://www.treehugger.com/files/2006/11/zulu_mama_chair.php