CONFERENCE PROCEEDINGS OF THE

Twelfth National Design Education Conference

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CONFERENCE THEME

"Opening gates, between and beyond design disciplines"

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PUBLICATION OF DEFSA CONFERENCE PROCEEDINGS

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The views expressed in this publication are those of the authors and not necessarily of DEFSA. Papers are published as submitted by the authors, after they considered and included recommendations from peer reviewers.

Full papers are submitted for peer review after successful acceptance of a conference abstract. All full papers submitted to the DEFSA conference committee are subjected to a rigorous double blind peer review process. This process takes place prior to both the verbal presentation at the conference and the publication of the proceedings. Expert specialists within the field of Art, Design and Architecture are selected to perform the reviews (Reviewers list is included). Authors receive feedback in the form of a peer review report. A confidentiality clause ensures that both authors and reviewers remain anonymous during the peer review process.

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FOREWORD

Brief overview of the conference

Over the past 18 years DEFSA has aimed to ensure that conferences provide attendees the opportunity to interact, exchange and debate topical design education issues. The main aim of the Forum is to foster design education in the southern African region at various education levels as well as at industry and government level.

In 2008, DEFSA was invited by the organizers of the first International Mohair Summit, Inkanyezi Events, to present a conference parallel to the Mohair Summit. The purpose of the International Mohair Summit was to promote the use of the mohair fibre as widely as possible through attracting and reviving national and international attention. DEFSA considered the participation of design education in the 2009 Mohair Summit as an auspicious opportunity to strengthen and build on the partnerships between Government, industry and education. One of the aims of DEFSA is to ensure that liaison is maintained between the higher education sector, education authorities and the design industry. Interaction with industry (especially producers and manufacturers) has not been successfully realised to date and the Summit provided the first opportunity of this nature to design education.

From 3-8 November 2009 the conference organizers ensured that a comprehensive programme accommodated the various role players and participants of the Summit. The International Design Summit aimed to include all role players from the producer to the processor, buyer to manufacturer, manufacturer to designer. The DEFSA conference was offered parallel to the Summit programme from 4-5 November 2009. The two-day DEFSA conference programme included 18 papers that addressed a range of topics pertinent to the conference theme and sub-themes. Panel discussion sessions provided delegates with the opportunity to reflect upon and debate the pertinent issues raised within the presentations.

DEFSA conference theme and subthemes

The Twelfth National Design Education Forum conference was hosted by the Design Education Forum of Southern Africa (DEFSA) and co-hosted by the Nelson Mandela Metropolitan University (NMMU) in collaboration with Inkanyezi Event Organisers, the event facilitators of the 2009 International Mohair Summit. DEFSA encouraged speakers to investigate and debate the manner in which boundaries between design industry, government, community and design disciplines could be addressed within the following conference theme:

Theme: Opening gates, between and beyond design disciplines
Subthemes:

- Opening gates to new terrains
- Opening gates between design disciplines
- Opening gates beyond design disciplines
- Opening gates to environmental awareness

Image & Text special edition

A 2009 special edition of the design journal *Image & Text*, was devoted to selected papers presented at the 2009 DEFSA conference. The authors were approached, by the editors, to develop their papers into articles that met the criteria set by the journal. The following authors' papers were approved for publication:

- Amanda Breytenbach
- Piers Carey and Rowan Gatfield
- Mary Duker
- Nina Joubert and Inge Economou
- Nadia Viljoen and Ria van Zyl
- Karen von Veh and Landi Raubenheimer

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Firstly, thank you to all the authors that invested a considerable amount of time and effort in the preparation and submission of the conference papers. In addition, a word of sincere appreciation is extended to the peer reviewers for reviewing the papers.

A large group of people, across South Africa, has made a significant contribution to the successful outcome of the Twelfth National Design Education Conference. The following groups and institutions are acknowledged for their input:

- Contemporary Events
- DEFSA Executive Committee
- Department of Applied Design at Nelson Mandela Metropolitan University
- SABS Design Institute
- Inkanyezi Events

The following people deserve receiving individual acknowledgement:

- Tanya Smit
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- Inge Economou
- Dianne Volek

Finally, the editors from the design journal *Image and Text* identified a selection of conference papers to be reworked and improved for journal publication. Special thanks to the editors, Prof Marian Sauthoff and Prof Jeanne van Eeden as well as Jacques Lange from Bluprint Design.

Amanda Breytenbach
DEFSA President

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PITCHES AND PROPOSALS: LINKING RESEARCH AND COMMERCIAL STRATEGIES

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Abstract

One of the central obligations of a post-graduate programme at a university is research. Any research project starts with a research proposal. Therefore one of the central tasks in the training of researchers is mastering the strategies of persuading the overseers of research that the task that the researcher is undertaking is feasible, do-able and worthwhile. To do this act of persuasion the researcher has also to demonstrate that he or she is in all likelihood capable of doing research – this demonstration of competency is built into the proposal. The result of research will be a document like a dissertation.

However, when the purpose of doing the research is not to produce a document containing the findings of research, but to develop a product, process or design that is functional, effective and "sellable," then the nature of the proposal appears on the surface to take a different direction. However, in essence, as we shall argue, in the latter case the researcher is attempting not to acquire approval to do the research, but to acquire approval from a set organisation to spend its money on the development of such a product, process or design. Fundamentally, we shall argue, the act of persuasion for acquiring approval (research) and acquiring money (product, process or design development) is extremely similar. Indeed, as we shall demonstrate, the trajectory of the proposal and the trajectory of the "pitch" (the term used to demonstrate competency so that a tender or contract might be awarded) follows very similar research grounded strategies.

We do this to suggest that the central thrust of training researchers at BTech level (4th year level) might point the research project either to the classic research endeavour or to the notion of training candidates to develop effective pitches for contracts – the research strategies are extremely similar.

Key Words: *research, proposals, pitches, practice-as-research, training/education*

Introduction

The history of the process of integrating former Technikons into different forms of university institutions in South Africa is well known. In the case of this article, the authors' experiences are around the transformation from a Technikon to a University of Technology (with the focus on the Design environment), which will form the basis of the argument that will follow.[1] Centrally, this transformation has required somewhat of a paradigm shift in pedagogical outlook, with the concomitant strategic trajectories in teaching and learning. Key to this change has been two fundamental perspectival realignments. Firstly, the shift has been from a skills-based, practice driven, product development approach with the aim of producing technically skilled and versatile students for the labour market to engage in commercial enterprises, to a theoretically underpinned, critically engaged student that must justify decisions made, and be able to locate designs in the industry, in society, in culture, in aesthetics and in the academy.[2] Secondly, in our experience, this trajectory has created an uneasy fit between a teaching approach that used to be embedded in experience, "talent," and the innate "messiness" of the design process, to the seemingly linear, conscious, scaffolded approach which is the hallmark of analysis and critical thinking, and therefore the academy. Succinctly put, the outputs required to

[1] The debate around the differences and similarities between "classic" universities and Universities of Technology is ongoing and not yet resolved. For the purposes of this article the two have been somewhat conflated.

[2] The "academy" is seen as the institution that foregrounds "classic university" pursuits, which include research, argumentation, logical disputation and the like, much of which needs to be presented in written format.

demonstrate competency by the student have moved from a design-commerce interface to a design-commerce-academy interface.

A key component of this output shift is to be found in the area of research. There are a plethora of definitions of what constitutes research and almost all include the notions of problem definition, problem solving, data or information gathering, trajectory of argument, conclusions reached that are to a greater or lesser extent justifiable and/or can be generalised[3] and the demand that the research findings be places in the public domain. Where the contentions might occur is in the presentation of research findings in the public domain. In the Technikon environment these findings took the form of presentations of design in a commercial setting (real or virtual) and could be argued to take the form of a pitch for a contract. In the University setting the outputs of research need (currently) to take the form of a written document, such as a mini-dissertation or a research report.

In our experience at the Tshwane University of Technology the department annually presents exciting pitches prepared for clients by students in our undergraduate and B Tech programme. These presentations are done with enthusiasm and a clear sense of purpose and direction. The visual and oral presentations and the explanations and explications (and justifications) of the designs are lucid, interactive and persuasive. There are clear interfaces between design and commercial interest and perceived need that fuel the engagement within the community of design and commerce. In our experience this enthusiasm (and competency) is in stark contrast to the anxiety and uncertainty a lecturer has to face from the students when the students have to focus on the world of research at B Tech level, as suggested by the notions of the academy.

The potential reasons for these uncertainties and anxieties are manifold. In the first instance (and perhaps influencing the other instances), many of these students have gone through three years of Diploma training, where the emphasis has been on the design creation and not on the justification (written or otherwise) per se, and this "appears" to change radically when confronted by a supposed monolith called "research." Secondly, drawing on Herrmann's (1995) notion of whole-brain learning and preferences (where the brain is metaphorically divided into areas that allocate preference to Fact, From, Feeling and Fantasy[4]), one could argue that a designer's preference in a work of design is, creatively, in the Feeling and Fantasy domain, with some movement toward Form. In this model, Fact and Form are predominantly the domain of language, linear analysis, rhetoric, argument, statistics and the like. Designers enter the programme because of their preferences for the Feeling and Fantasy approach. A third possible reason might lie in Howard Gardner's theories around Multiple Intelligences (1993), postulating that a designer's chief intelligence is located in the Visual Intelligence mode, and not in the Logico-mathematical or verbal/linguistic mode – the domain of the academy. Candidates who enter the programme are adjudicated because of their perceived potential in Visual Intelligence. Fourthly one could theorise that the dread at the prospect of research might be positioned in the nature of the reflective practice in a style of education that is central to Design education (see Schön, 1983). In this mode of education, the nature of the reflective practice is often visual and draws on the master-novice/acolyte mode of teaching, thus potentially excluding, in "imitation and extrapolation[5]," the verbal descriptions and guidance that might go on in other domains. In some senses this leads to a shortfall in verbal methods of description, where teaching takes place through demonstration. This is the pedagogy that they are used to. Finally, one might speculate on the evaluation of ability in this field that might, to a large extent, lie in visual output, and not in verbal output. During the Diploma years this has been the predominant mode of evaluation and the candidates are used to this. In all of these

[3] The notion of "generalisability" is a contentious one and has split the research community along the lines of quantitative and qualitative research methods. In the former case, the generalisability lies in the statistically significant "proving" of the conclusions, whereas in the latter case the generalisability lies in the recognition by the reader of the similarities of circumstance and therefore the similarity of conclusions. This explains the necessity for detailed descriptions of context, but it also points to the appropriateness of qualitative methods in design, where recognition and appropriateness decisions are made by the viewer, for example.

[4] These are the more easily accessible terms, in our view.

[5] The notion of "imitation and extrapolation" speaks to the beginning phases of learning in the apprenticeship mode, where the novice learned by replicating the master artist, and this progressed, as the skills were mastered, to an extrapolation of the work as the novice creatively extended the work and extrapolated on the guidance provided by the master.

instances (and given the potential profile of students as suggested) the thrust of teaching and learning leads towards design output that is visual in nature, and where the oral and written are used to augment the design, not critique it, necessarily, as in other output forms.

Nevertheless, it is the nature of university training that verbal (written) and overt analytical dexterity in tertiary education are demanded at higher levels. The ultimate act of demonstrating competency in this logical and verbal dexterity is the act of research. Yet at the same time, access to industry demands the demonstration of a visual and conceptual "dexterity" – it is the design that counts, not the argument specifically. The question therefore arises: what innovative methods can be devised to assist in bridging this seeming gap between the visual and the analytical output, or between the conceptual and the logical thinking strategies? The purpose of this article is to posit a potential way of framing the debate that might assist in crossing this divide, with concomitant strategies that might be used in the process.

It must be noted that this potential disjunction between the artistic creative process in design, and the demands from academia for written demonstration of competence is not unique to the South African tertiary education landscape. Whereas the preponderance of design work in the United States asks only for a limited amount of "written work," many of the design schools or departments embedded in "traditional" universities both in Britain and in Australia have needed to bridge the gap. Much work has been done in this area in these countries and it finds its results in Practice-led research, Practice-based research, Arts-led research and related areas. Gray and Malins have written comprehensively in this area (2004) outlining the history, demands and strategies, particularly in Design, that have been worked through in Britain, Leavy (2009) does the same for some of the burgeoning thinking in this area in the United States (although her work is predominantly arts driven, the parallels are clear) and some definitive work coming out of Australia is documented in the collection edited by Barrett and Bolt (2007). This last collection also provides some provocative guidelines as to how to interweave the practice/design and the research components, particularly in setting up the proposal (but also in the research report writing process).

The central tenet of this Practice-led approach is that the data to be gathered, and the trajectory of the argument to be made, can only be found in the actual practice itself. Without the design there is not a research output, for example. In this instance, therefore, the development of a clearer understanding of contexts, needs, methods and the like inform the practice, and the practice informs the context, needs, methods and, consequently, the conclusions that are reached. However, in Practice-led research both the design and the written report are necessary. This approach is still burgeoning in South Africa, and requires refining, adaptation and adoption, and recognition before it can become a fully fledged tertiary education pursuit, and the discourse that goes with this approach needs to be developed

Given, therefore, the pedagogical shift from design for commercial output to research integrated into the design programme and process, and the problems that this gives rise to this article posits a trajectory to the arguing for a particular solution to the problem of leading the students from one frame of mind to the other. A framework for understanding the design act as a creative act and process will be determined, so that a bridge between design and research can be initiated – it will be posited that this bridge can be found in the notion of the *act of persuasion*. Following this the research act will be addressed, and more particularly the research proposal or protocol as a demonstration of this as potential act of persuasion. This will be followed by an exposition of the nature and strategies of the pitch, and the article will conclude by pointing to the differences and similarities in the two processes, as a way of demonstrating how close the strategies are, and thereby arguing that either the pitch can be used as the *alternative* to classic research methods as captured in a proposal, or the pitch can be used as a way of *demystifying*[6] the process to demonstrate research competency, as presented in the writing of a research proposal.

Because the nature of the "pitch" is so pervasive in the industry it is difficult to find an authoritative definition for the term. For the purposes of this article (and acknowledging that the definition might be constructed to "assist" in the argument to be made) the following definition might be posited: "A pitch

[6] It is assumed from experience that the research process is a "mystery" and therefore this paper will argue that the students need to be guided to solve the mystery.

can be defined as an *act of persuasion* (using any and all media) by a designer to a client, where the designer is attempting to persuade a client to engage the designer in further work. This act of persuasion (pitch) will need to demonstrate validity, innovation, fit-for-purpose, strategy and competence." This definition situates the potential (commercial) product, the designer and the consumer in a relationship and suggests that the communication that ensues is purposeful in that it attempts to present the merits of the product to the client in such a way that the client is convinced of the acceptability and value/innovative characteristics of the product for the client's purposes. Taken this way, the trajectory is from creative act to persuasive act.

Attempts to understand the creative act have proliferated over the past number of years. A comprehensive presentation of these trends has been made by R Keith Sawyer in his book *Explaining Creativity: the Science of Human Innovation* (2006). Because of the wide-ranging nature of the summary of the current thinking on creativity contained there, the argument presented here draws extensively on his thinking.[7] Supported by theories of leading researchers in the creativity domain Sawyer starts off by identifying creativity as the emergence of something novel and appropriate, from a person, a group, or a society. (See also Hallam and Ingold, [2008] for this argument, and an explanation of the difference between creativity and innovation). This sociocultural approach to explaining creativity and innovation has three interwoven dynamics at work, namely, the roles of the individual, the domain and the field.

The *individual* might be seen as the starting point of innovation – at least the individual is responsible for the work that is taking place. The individual begins the innovation process by developing a created product and is subject to the idiosyncrasies, strengths, talents and proclivities of the *individual at the time of creation.* For research this conjures up the image of the intrepid solo explorer, and for the designer the notion of the creative and inspired genius at work. Traditionally the individual, imbued with talent, would be seen as the sole source of the innovation, but Sawyer argues that the individual's approach is radically tempered by (if not completely reliant on) two other dynamics in the process.

The *domain* contains all those processes that are present in the area in which the individual is working. These include techniques, systems and processes relevant and accepted as practice in the medium, the systems of training that have become standard, the context in which the creative act will take place, the standard theories at work, and so on. The domain is discipline and expectation driven. The theories, practices, systems and techniques are allowed to enter the domain and are cemented there as "best practice" because the field has done this. Within the research "domain" these practices are also evident – methods and methodologies, trajectories of argument development, strategies for analysis, systems of verification and reliability, justifications through literature surveys, and the like. These are contained in any research methods course, for example.

The *field* contains the trend-setters, the theorists, the educators and curriculum developers (who assess excellence, for example, and foreground priorities) and are the gatekeepers of the domain. It can be argued that nothing is confirmed in the domain unless the field has sanctioned it. In the field the interweave among power positions, the setting of norms and standards, the recognition of insight and innovation in its own right also play out. The field contains the leaders in the domain.[8] The field also plays another role in industry, namely that of sanctioning and approving or rejecting pitches, and thereby setting standards of sorts, or at least parameters for general or specific projects. (One of these parameters, for example, could be financial in nature.) In the research domain the field includes the gatekeepers to journals, the assessors of dissertations and theses, but it also includes the innovators in methods, the metascientists and the funders of research projects.

Thus it can be argued that the individual designer is not an autonomous, self-generating artist, but is bound into the practices of the domain (technologies and practices) that are sanctioned by the field

[7] Sawyer's approach has a strong socio-cultural delimitation. It can be argued that this fits effectively into the design as creative act mode, although Sawyer in his book does not make this connection. The "socio-cultural" approach embeds creativity in the interactions of society and its culture, and its systems of generating, promoting, and evaluating innovative artefacts.

[8] The central role that "peer review" plays in much assessment and evaluation has it roots in this concept of the "field."

(commercial and industrial demands). The designer has to master the "approved" domain, and have his or her design "accepted" by the field. To do this the designer has to work within the parameters set by the field, and the demands of the field/domain. They internalize the conventions of the domain which includes criteria for judgement, thereby being reliant on, and eventually engaging with the field. For researchers the stringent demands of the domain (the academy) and the field necessitate (seemingly) the learning of another set of complex, interwoven, strategies, and their demonstration.

Given the above and the still unsettled nature of the University of Technology setting one might argue that there are not one but two domains that are in operation (each with its own field), namely the creative and the "academic" domains, and the undergraduate has to oscillate between these two domains. In practice-rich education (skills development, commercialisation and industry focused training – the Technikon and perhaps the University of Technology training) one domain is accentuated, whereas in theory-driven education (understanding and critical engagement work) another is emphasised. Yet ultimately, to fulfil the academy and the vocational mandate both have to do both, so to speak, in some form or another and the balance is the key concern. Nevertheless, "practice on the university ground" notes the demand for both, and the similarities between proposal and pitch offer a way to address this potential dichotomy and bridge the output divide.

Central to the section that follows is the conceptual frame that presenting research results is in essence an *act of persuasion*. This implies somewhat of a paradigm shift in understanding. Traditionally the research report (the dissertation and the thesis, for example) was conceived of as a presentation of findings, and this has not changed dramatically. What needs to be added, however, is that the trustworthiness and reliability of the findings have to be demonstrated as well. Furthermore, the presentation of the report demands an acceptable or accepted system of presentation. And finally, the logical interpretation of the findings needs to be done in such a way that the reader (for example) can accept that conclusions.

Conceptually embedded in this notion, therefore is that the research report has to persuade or convince the reader (who, in the case of research, forms part of the field) as to its accuracy, effectiveness and therefore acceptability. For this to occur it would mean that the writer of the report writes with the reader/assessor in mind, structuring the report (and the research that goes with it) in a way that is acceptable to the reader. Effectively the writer/researcher uses the strategic demands of the domain – that is to say, the shared, accepted ways of doing and writing research – to present the research and findings. But *the reader/gatekeeper/assessor* is the one that has to be persuaded, and so the writer uses the reader's language, methods, strategies, and so on, attempting to intercept the potential arguments against the findings. (It might be argued that this parallels Bakhtin's [1982] notion of the *dialogic*). Presenting research findings in what appears to be an objective, transparent and "clinical" manner is as much an act of persuasion of "scholarliness" as the linguistic turn of using the domain demands effectively to achieve a result, so long as an ethical bent is observed. Indeed, the difference between "demonstrated scholarliness" and "persuasive scholarliness" is a matter of sophistry only.

The research proposal, or protocol, provides an excellent vehicle to introduce and hone the rhetoric of research. Such rhetoric includes the located and justified problem to be investigated, the appropriate methods to be applied, the analytical systems to be used, the trajectory of the argument to be followed, and the way of synthesising the results. In essence, the potential researcher in the academic environment uses the proposal to convince the supervisor that the research that is proposed is valid and can be done, and requests permission from the gatekeepers to proceed, should the reader/assessor be convinced. The researcher has to persuade the assessor, who is the *gatekeeper from the field* that the researcher can *operate effectively in the domain,* and that the product to be developed – the research report – will deliver what it promised to deliver. As such the proposal, at BTech level, might be seen as providing a vehicle that will demonstrate enough evidence that the candidate knows enough about the domain to manoeuvre within it, and enough about the systems of field discernment to persuade.

Most universities demand adherence to proposal frameworks. The frameworks are systems that the scholarly or research field has set up so that the researcher can follow an effective trajectory of persuasion. Generic to most frameworks and therefore central to the trajectory of the act of persuasion

are the following strategies. They are offered here in an unsophisticated way, so as to illustrate the argument.[9]

Most frameworks begin with an act of *contextualisation* (or "background and motivation"). In this section the researcher locates the area in which the research is to take place and draws the reader into the project. The contextualisation "sets the scene" (a rather appropriate metaphor for the designer), very often in way that persuades the reader of the interest that he or she will find in this area. The contextualisation leads to an interrogation of what others are doing in the selected aspect of the domain – the next section – and begins to focus the research problem.

The section that usually follows is known as the *survey of scholarship* or *Literature review.* In this section the researcher surveys the extant and specific domain and what has been done in the area in and around the concepts that he or she will be working in. Here the research needs to demonstrate to or persuade the relevant gatekeepers that he or she has done enough[10] survey of scholarship -- survey of domain -- to justify the research project and to delineate the potential novelty of the findings. (The act of persuasion around novelty or innovation means that the assessor would be able to sanction new findings through the field so as to "allow" these findings to enter the domain). Put another way, the Literature Review seems to lead persuasively to the necessity of the problem that is to be interrogated, or question that is to be answered. This is the area of innovation or contribution to the domain that the research might make.

Having identified the lacuna in the domain, the *problem* can next be stated. In this section the researcher is compelled to pose the problem or question as succinctly as possible, to persuade the assessor/gatekeeper of the coherence (and relevance) of the problem, or the necessity for seeking the answer. Following this the potential *answer/aim/hypothesis* is posed. In this section the researcher draws on his or her survey of scholarship in the domain to pose a *potential* answer to that problem or question.

Having posed the problem and the potential answer the research posits a strategy for the research. This section in essence contains two subsections. In the first subsection the researcher demonstrates the methods, theories, models and strategies that he or she will be using to solve the problem or argue that the answer that has been posed is true or effective. Here the researcher has to draw on (from the domain) the methods, theories, models and strategies that the assessor/gatekeeper accepts as valid in the act of persuasion of the efficacy of the strategy. The second subsection has to do with the design of the project, in that the process needs a step-by-step development plan, persuading the assessor as to how the methods and strategies will unfold.

Some frameworks require time and budget frames indicating time and cost implications and roll-out strategies, all of which has to persuade the assessor/gatekeeper as to the possibilities of completion.

Crassly described, the researcher has to sell the project to the gatekeeper/assessor by using the rhetorical devices[11] at his or her disposal.

Having established the trajectory of the proposal, the argument needs now to interrogate the trajectory of the "pitch," to demonstrate the parallels. Conceptually the *researcher* becomes the *designer*. The nature of the gatekeepers, as has been demonstrated in the research area, is cardinal -- If one cannot persuade them, then the project or pitch will not proceed. It can be argued that there are two gatekeepers involved in the pitch, the one embedded in the other. The pitch for a contract will be

[9] There are a plethora of manuals for guiding research that present the generic aspects in their full complexities, and the reader is encouraged to consult them to broaden the argument presented here.

[10] Two points are worth bearing in mind here. Firstly "enough" would be different from research level to research level in the research training process, and secondly "enough" is measured against the notion that this section in the proposal will in all likelihood be made more extensive in the relevant chapter in the research report.

[11] A scan of a number of dictionaries on the use of the word "rhetoric" indicates that this refers to strategies of persuasion. They also warn against the potential pejorative meaning indicating unethical persuasive tactics. In no way is the latter intended here. The discipline of Rhetoric is a time-honoured one.

made to the client, so the client – the person who controls the money – is the first line of gate-keeping. For the sake of clarity these shall be referred to as "the company." The gate-keeping profile in this instance would be economic, strategic and aesthetic, embedded in experience and design "know-how". The second line, embedded in the client company, is the category of clients that the company sells to – the customers. In essence the company's task is to persuade the customer to buy its product, and the task of the designer is to persuade the company to buy his or her product. For the triangle to be effective, the central task is the act of persuasion.

It is perhaps the nature of the designer to "illustrate" an argument, which is the strategy of explication this article now follows. The exemplar posits an upmarket automobile manufacturer – Company XYZ – who decides that in the next step in their marketing strategy they would call for pitches for a concept for a design of a Lifestyle centre for their clients. A designer decides to pitch for this contract. Inevitably the designer has three dynamics that have to enter his or her decision-making process – in essence there are three domains that he has to interrogate. In the first instance the designer has to gather data on the profile of the XYZ potential buyer. This speaks both to the actual profile, and to the vision of the profile as conceived by the company, should these differ. Secondly the designer has to gather data on the demands of Lifestyle centres in general. Here one refers to Lifestyle centres generically, and ones that are more specific to other motor manufacturers, should they have such centres. Finally, the designer has to translate these profiles and the demands into an aesthetically pleasing yet functional design that speaks most effectively to that customer profile and that client demand. In this sense the designer is drawing on the creative domain of his training, and the individual insight that he employs. (The fourth dynamic follows: "How can I best present my ideas so that the client will be persuaded to accept my concept?")

Framed in this manner, the use of a proposal format or trajectory now becomes clearer. Using the subdivisions in the proposal framework, the following might be effective (and one must bear in mind that the designer/pitcher will need to gather the relevant information and then shape his presentation according to the demands – domain and field requirements for a pitch format -- of the client). In the *contextualisation* of the pitch, perhaps seen as an "introduction," the pitch will outline the central concerns of the pitch, painting a picture of what the situation looks like. In the next section (the s*urvey of scholarship/literature review*) the designer would need to do three things. Firstly the designer would have to demonstrate that he or she has a clear idea of what the profile of the XYZ market is. To do this the designer would have to gather data on what this profile might be, foregrounding specific characteristics that make the XYZ customer unique or at least different from other automobile users. Secondly the designer would have to isolate the extant XYZ design and branding principles. To do this the designer would have to interrogate the literature emanating from the XYZ marketing and design departments to isolate central design elements that need to be incorporated into the eventual design concept. Thirdly, the designer would have to demonstrate clearly that he or she has a clear idea of the functions and dynamics of a generic lifestyle centre. To do this the designer would have to investigate the general principles of a lifestyle centre, drawing on extant models. It would be more efficient to label this section rather as the "key concept constraints." All of the data gathered here would be from the review of literature – a standard research skill. These constraints would then lead to the potential design problem.

In the pitch the designer can now pose the d*esign problem*. Although the question appears somewhat rhetorical it is useful to pose it, as it gathers the diverse strands that need to be considered, together. The central question would then be stated: "What design concept can translate the profile and the demands of the XYZ brand and customer into an aesthetically pleasing yet functional design of a Lifestyle centre that speaks most effectively to that customer profile and that client demand?" Having posed the question the designer now offers the central *potential design concept,* which would address the core design concept, the central thrust of the design, and the overriding unifying aspect of the design. This might be presented in the form of a demonstration or a description. Fulfilling the central concept would be the core aim of the project.

Where the researcher would now move to the *methodology and research design*, the designer moves to a demonstration of the playing out of the core concept in particular, integrated and design strategic areas. What follows, (speculatively, and drawing on the example posed) is an attempt to outline the process. The designer would present a possible d*esigned physical structure,* which would demonstrate how his or her core concept would resonate conceptually in the physical structure, capturing XYZ brand, customer and lifestyle demands. Following this the designer would demonstrate

conceptually how the functioning subdivisions would resonate with the core concept and the purpose of the centre, bearing in mind XYZ branding and customer demands. Following this the designer might present central c*olour/interior design.* Here the designer would demonstrate the resonance of the core concept in the design of the interior. The procedure would iterate as required. Besides the design skills required, the skill of building a justification from data of the design choices made needs to be demonstrated.

As with the researcher, the designer might need, at this moment and where necessary, to posit possible time lines, budgets and the like to demonstrate this capability.

Given the above, one might now demonstrate potential parallels between the two systems.

RESEARCH	**DESIGN**
Contextualisation	Contextualisation/Introduction
Literature Review	Key Concept explanations/constraints
Problem Identification	Design Problem Statement/Question
Aims or Hypothesis	Core Concept
Strategy for Research: • Methodology and justification; • Research Design and justification.	Specific Design: • Design element one with justification; • Design element two with justification; • Design element three with justification; Etc.
Budget, time lines etc	Budget, time lines, etc.

What are the implications of this approach or this argument? Firstly it is clear that should the research proposal be successful it would lead to a research project and a research report, whereas should the pitch be successful, it would lead to a complete design and a product. (As an extension to this, it means that the different outcomes target different aspects of the research chain, moving closer to product development and commercialisation). Secondly it is also clear that many of the research strategies that are used to build a research proposal parallel the same strategies required to make a successful design pitch. If this is accepted, then it means that designing a research methods training course at fourth year, for example, might include the pitch as an effective, University of Technology driven outcome, in line with Research and Innovation strategies.

In the third instance, the skills and strategies are similar in both cases for the garnering of information; the act of persuasion has been demonstrated to be similar, and so it becomes a matter of acquiring the requisite language or discourse for the particular task at hand Fourthly, this approach clears the way for, on the one hand, meeting the demands of a university to teach research strategies, but at the same time, on the other, allowing students to focus on their preferences in the learning experiences. Furthermore, it offers a way for advanced, industry driven, skills development. Finally, it points a way towards developing contract research, innovation and design as part of an Incubator programme at masters' level and beyond and the skills that are required to operate in such an environment.

In this article the argument has been made that the trajectories of "doing research" and "pitching for a contract" are similar. The reason for making this argument is so that practice-driven, experiential type training that is the central thrust of Diploma qualifications in design might more easily and less traumatically translate into the scholarly pursuits of research that are the bailiwick of the academy. The pitch can become the bridge in skills development between design as an activity and research as a different yet related academic activity. What has not been argued in this article are the possible differences and similarities in the gathering of the relevant data, the making of the logical sequencing of the data, the gathering of effective and trustworthy data, the manipulating of that data ethically and logically, and so on. These are strategies of persuasion on the micro-level that any tertiary education programme should be fostering, anyway. However, the dimension that has been suggested here is in the engaging with the act of persuasion for specific purpose and product – the leap into the professional world of both design and traditional scholarship that is required of B Tech students.

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Short Biography

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OPENING GATES: REFLECTING ON THE LIAISON ROLE OF THE DESIGN EDUCATION FORUM OF SOUTHERN AFRICA AT A TERTIARY LEVEL

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Abstract

The paper reflects on how DEFSA has delivered on the Forum's first aim, with specific focus on the liaison activities that takes place at a tertiary level. This aim, as documented in the DEFSA Constitution, reads "Ensuring that liaison is maintained between relevant primary, secondary and tertiary levels of education in matters pertaining to design education, between technikons, universities, technical colleges, private institutions, education authorities and the design industry" (DEFSA, 2007a).

This paper focuses on the manner in which liaison has been maintained over the past 18 years, through the use of the DEFSA conferences, between tertiary institutions and between similar design disciplines. The liaison activities are associated with gates of opportunities that are opened and as a result connect people, institutions and design disciplines nationally and abroad. The reflection is conducted over three time periods; past, present and future.

The first time period described as the Technikon phase, reflects on the past history and liaisons that took place from DEFSA's inception in 1991 to the announcement of the higher education institutional mergers in 2002. The second period reflects on the present, which includes the merger period. This phase described as the Higher Education merger and restructuring phase, reflects on the impact of the merger, the restructuring of the design education landscape, design programme offerings and the role that DEFSA fulfilled during this period. Lastly, the third period presents a future projection by reflecting on the current expectations and challenges that impact on the future of DEFSA.

To date, no reflection or evaluation of the role and function of DEFSA has been conducted. This study is therefore limited to information that could be obtained from DEFSA Executive Committee Minutes, conference records and Discipline Workgroup reports. However the lack and absence of well documented data impacted negatively on the literature survey that formed the basis of this study.

The reflection indicates that DEFSA has established a well connected network of design educators across southern Africa. The restructuring and transformation of the higher education landscape had a visible impact on the offering of regular conferences and a reduction in the institutional membership. The Forum will have to reinstate their effective network in order to be acknowledged as a worthy and effective promoter of design education.

Keywords: *DEFSA, institutional liaison, programme liaison, design education network*

Introduction

Since the inception of the Design Education Forum of Southern Africa (DEFSA) in 1991, the annual (at times bi-annual) conferences have been the most prominent event of the Forum. As a result, the delivery and organization of conferences is the main focus of the DEFSA Management Committee. Conferences provide the ideal opportunity for DEFSA to deliver on the majority of the sub-aims as presented in the DEFSA Constitution, of which the main aim of the Forum is to "foster design education in the Southern African region" (DEFSA 2007a). The target audience of the DEFSA conferences are members from tertiary education across the southern African region. Over the past 18 years DEFSA has aimed to ensure that conferences provide attendees with the opportunity to network and exchange research and design knowledge and ideas. Furthermore, discipline workgroup discussions were included in the conference programme to stimulate discussion between similar design disciplines. This paper distinguishes between two types of liaison activities that take place at conferences. These types of liaisons are networking and interaction between individuals from different institutions and between individuals from similar design disciplines. These two activities would form the

main themes within the reflection that is conducted over three time periods; past (1991-2001), 2002 to present and lastly the future.

The reflection, conducted for this study, is considered important since DEFSA has received both praise and severe criticism over the past 10 years. Since 2002, Minutes of the Management Committee meetings indicate that the planning and presentation of annual conferences has become very difficult. The restructuring and reformation of the South African Higher Education Institutions (HEI) have impacted on the workload of design educators and as a result on the performance of the Forum. Furthermore, the focus on delivery of institutional research output has placed a larger emphasis on peer reviewed conference papers and reduced opportunity for discipline workgroup discussions. DEFSA has to address both challenges and expectations that are presented in the current educational environment in order to ensure that it continues to deliver on the aims as presented in the Forum's Constitution.

This paper therefore poses the following research question that pertains to the two types of liaison identified as themes for this paper:
How has DEFSA delivered over the past 18 years the Forum's sub-aim, to ensure that liaison is maintained, in matters pertaining to design education, at a tertiary education level?

Against this backdrop, the aim of the study can be stated as follows:
To reflect on the past and present higher education environment, in order to determine the challenges and expectations that should be considered by DEFSA in order to ensure that the Forum continues to maintain liaison at a tertiary education level.

Scope of the study:
Although the Forum strives to maintain liaison between primary, secondary and tertiary education levels this paper will only reflect on the liaison that takes place at a tertiary education level. The delimitation of the study area is required in order to keep the study manageable and focused. The author does not intend to create the impression that liaison between primary and secondary level is unimportant. On the contrary, DEFSA has made various proposals, to the previous Department of Higher Education, to plead for the recognition of design as a school subject.

Research Methodology

The execution of this study depended on the availability of the information such as: Minutes of Management Meetings, Annual General Meetings, President's reports, Conference Proceedings and Discipline Workgroup reports. It became evident that a clear record keeping system has not been kept consistently since 1992. The Secretariat was relocated from the Design Institute to Cape Technikon in 1999, thereafter to Bloemfontein in 2001, and finally returned to Pretoria in 2003. In 1999 Ms Mel Hagen, then President of DEFSA, indicated that a permanent location for the Secretariat needed to be identified, ideally one that is not linked to the location of the President (DEFSA 1999). Fortunately, DEFSA has appointed a contract Secretariat since 2006, but it became evident that various past records had been lost over time.

The lack and absence of well documented data therefore impacted negatively on the literature survey that formed the basis of this study. As a result the author was dependant on personal copies of DEFSA records that were kept since 1998. It should therefore be clearly stated that the author's involvement in DEFSA's management committee, over a significant period of time, assisted in the mapping of processes and events. The sequence of events and decisions would not have been evident to an outsider conducting this study. It should also be stated that it is the intention of the author to remain objective in the reflection that is conducted; however, due to the author's involvement in the Forum, it is impossible to exclude personal opinion and interpretations in the study, specifically in the future projection of DEFSA.

Brief description of DEFSA

Since 1986, an annual Design Education Conference was organized by the Design Institute of the South African Bureau of Standards (SABS). These conferences provided an opportunity for design educationists, from tertiary education institutions, to present papers and discuss common concerns based around a central theme (Design Institute of the South African Bureau of Standards 1990).

Hagen ([S.a]: 1) explains that DEFSA "grew out of the Standing Committee on Design Education, which was established at the instigation of the Design Institute of the SABS in 1985". In 1991, the Standing Committee was reconstituted as the Design Education Forum of Southern Africa, and was officially launched at the first national conference hosted by Cape Technikon. Ms Adrienne Viljoen, manager of the SABS Design Institute continued to provide support and encouragement to DEFSA after the official separation from the SABS. The Secretariat of DEFSA remained with the SABS Design Institute until 1999 (DEFSA 1999).

From 1991 until 2007, DEFSA has presented twelve national and five international conferences, of which the majority were hosted by Technikons. Hagen ([S.a]: 3) explains that originally the focus of the DEFSA activities were presented around the requirements of tertiary education. Hagen ([S.a]:3) further explains that DEFSA came to the realisation that a close interconnectedness exists with the entire design education system. DEFSA therefore decided to expanded into the general education arena and include all levels of design education. The date of this decision is not clearly stated by Hagen, but is estimated as between 1998 to 1999 by the author.

The first Design Education Forum of Southern Africa Constitution was approved in April 1996. The Constitution states that the Forum's operation is co-ordinated by a President, Vice-President and Management Committee that are elected bi-annually at the Annual General Meeting (DEFSA 2002a). In 2007 the position of Vice-President was altered to that of President-Elect. The office bearers and committee members are not remunerated for any services. Until 1999, the Constitution clearly stated that members and office bearers had no right, of whatever nature, to the income of DEFSA. The funds was utilised solely for the furtherance of the aims of the Forum (DEFSA 2002b). The Forum is therefore dependant and indebted to the personal efforts and commitments made by people in the design education system that are willing to participate in the Forum's activities. To date seven presidents have been elected by the Forum. It is evident that these presidents were nominated for their individual strengths and management experience in higher education. They are;

1991 – 1994: Stan Slack. Mr Slack was from the previous Cape Technikon and is referred to as the original visionary of the DEFSA.

1995 – 1998: Prof. Ian Sutherland was involved as an educator, manager and researcher at the previous Sultan Technikon and is to date involved in the promotion of design education at the Durban University of Technology.

1998 – 1999: Eric Dinkelman was also Dean at the previous Technikon Pretoria and was considered as a design education curriculum expert until his retirement.

1999 – 2002: Mel Hagen was also Dean at the previous Cape Technikon and she made significant contributions to the expansion of DEFSA activities particularly into the school education levels.

2003 – 2004: Dr. Rudy de Lange was a manager and researcher in the Graphic Design discipline at the Free State Technikon and provided valuable insight into national research funding.

2004 – 2008: Colin Daniels is to date Vice Dean at the Cape Peninsula University of Technology and he provided leadership to the Forum during the national merger period.

2008 to date: Amanda Breytenbach is currently a Vice Dean at the University of Johannesburg and has been involved in design curriculation and higher education quality assurance since 2004.

From 1991 to 2001, the conferences and activities of the Forum ran parallel to a period of dramatic change within the government of South Africa. The 1994 election brought about a national paradigm shift which demanded complete transformation and reconstruction in the country. DEFSA commenced at a time in which state governance of the National Party made a clear distinction between universities and technikons. Bunting (2002) explains that the pre-1994 government motivated that the essence of a university was *science* and that the essence of a technikon was *technology*. The differentiation between institutional type as well as qualification type resulted in an educational system where each institutional type delivered programmes that related to a teaching and learning methodology as described by state policy. Universities therefore concentrated on the teaching and research of basic fundamental principles of sciences while technikons concentrated on the application of scientific principles to practical problems and to technology. Technikons furthermore focused on the promotion and transfer of technology within a particular vocation or industry (Council of Higher Education 2002).

The rigid division between universities and technikons further resulted in establishing specific policies relating to the function of each type of institution. The regulation of higher education programmes and qualifications were described in the following policy documents (Council on Higher Education, 2002):

- A Qualification Structure for Universities in South Africa- NATED Report 116 (99/02)

- General Policy for Technikon Instructional Programmes- NATED Report 150 (97/01)
- Formal Technikon Institutional Programmes in the RSA- NATED Report 151 (99/01)

At a national level, the technikons were managed by the Council of Technikon Principals (CTP) which determined the strategic direction of technikons in relation to their programme offering and programme quality assurance.

Initially DEFSA was largely supported by design educators from technikons. Hagen ([S.a]:1) identifies that during this period the technikons were the main providers of design education in the formal education sector. DEFSA was therefore mainly supported by institutions that offered design programmes with similar teaching and learning strategies and methodologies. Conferences and liaison activities gave technikon design educators the opportunity to discuss similar challenges and experiences that impacted on the offering of their vocational programmes. The third national DEFSA conference serves as an excellent example where DEFSA focused on the challenges that technikons faced with the introduction of the degree programmes.

The third national DEFSA conference took place in March 1994 and was entitled *Access to Design Education*. The format of the conference is described as "a workshop on common design issues and the recurriculation of technikon design programmes for BTech [Bachelor of Technology] degrees" (Hagen [S.a]:5). The focus of this conference was a response to the promulgation of the Technikon Act (No.125) of 1993. This Act enabled technikons to become degree-awarding institutions (Committee of Technikon Principles [S.a]). The division between universities and technikons resulted in an education programme structure that did not give ample attention to articulation possibilities between the different types of educational systems (Council of Higher Education 2002). The introduction of the technikon degree programmes aimed to give appropriate recognition to the tertiary nature of technikon education and address the need of equivalence between technikon and university qualifications (Committee of Technikon Principles [S.a]). In 1997, with the publication of the Education White Paper 3: A Programme for the Transformation of Higher Education (SA, 1997), the government announced a vision for the establishment of a single, national co-ordinated system. It was evident that the rigid division between the technikons and universities required rethinking with the proposal for a combined centrally co-ordinated system.

During the technikon phase DEFSA assisted in bringing tertiary design educators and institutions across southern Africa together. The DEFSA conferences provided opportunities for design educators, although they were mostly from technikon institutions, to connect and as a result DEFSA has established a well connected network of design educators. The 2000 President's report (DEFSA 2000) notes that although DEFSA is a small organisation it has a very extensive network that reaches out to the broader design community. From 1991 to 2001 DEFSA has managed to present seven national and four international conferences, in total 11 conferences. Conference attendance lists indicated that DEFSA conferences attracted between 100 and 120 delegates per conference.

At the end of the technikon phase Mel Hagen, then president of DEFSA, explains that the strengths of DEFSA is not in its formal membership but in a highly effective network (Hagen [S.a]). However, in the 1999 President report (DEFSA 1999), Mel Hagen lists ten goals that DEFSA aimed to achieve before 2001. One of these goals was to extend the DEFSA network to become a comprehensive network that links both private and public tertiary education institutions as well as industry contacts and relevant regional and national government departments. Cape Technikon, organisers of the seventh National conference in 2000, indicated that deliberate efforts were made to broaden the target audience even further to areas such as Engineering Design, Architecture, Craft and school sector (DEFSA 2000). It was evident that institutional membership has grown significantly during this phase, and that DEFSA was required to address the needs of a wider tertiary education audience.

The following institutions were members of DEFSA by 2001:

- Cape College
- Cape Technikon
- East London Technikon
- Inscape Design College
- M L Sultan Technikon
- Montebelo Design Centre
- Peninsula Technikon
- Port Elizabeth Technikon

- Pretoria Technikon
- St. Andrews College
- Technikon Free State
- Technikon North West
- Technikon Witwatersrand
- University of Pretoria
- Vaal Triangle Technikon

Higher education merger and restructuring (2002 to date)

The first five years of the post-apartheid South Africa was landmarked by the emphasis placed on the development and introduction of new policies and legislation. In higher education the period after 2001 signifies a time period of dramatic change in both the restructuring of the higher education landscape and the approval of a new programme qualification framework.

In 2002 the Minister of Education, then Kadar Asmal, announced that the number of public higher educations institutions would be reduced in order to improve the institutional landscape of the higher education system. The Transformation and Restructuring policy (SA, 2002) presented the new institutional landscape and the mandatory mergers in higher education. The consolidation resulted in the reduction of the number of public institutions from thirty-six to twenty-one. This did not lead to a decrease in provision, as all the existing sites of delivery were continued; but it did lead to new institutional and organisational forms. The new higher education landscape represented three types of institution, traditional universities, universities of technology (replaced the term technikon) and lastly the introduction of a new institutional type referred to as comprehensive institutions (SA 2002). The term comprehensive institution is used in the Transformation and Restructuring Policy (2002) as a reference to the merger of a technikon and a university structure.

In July 2004, the Ministry of Education presented the first draft Higher Education Qualification Framework (HEQF) and it was finally approved in October 2007 (SA 2007). The HEQF aims to establish a single qualification framework for higher education and, as a result, indicates a shift away from technikon-type degrees, since these programmes are not included as qualification-types within the framework. The predicted outcome was that the technikon degrees, approved in 1993 and implemented in 1995, would have to be removed from programme offering structures over an undisclosed time period.

The announcement of the national higher education mergers in 2002 signifies the beginning of a time period that is described as turbulent and uncertain by members of DEFSA (DEFSA 2002c). The restructuring and reformation of the South African Higher Education Institutions (HEI) has impacted significantly on the design education landscape. The national mergers have caused an unexpected reduction in the number of DEFSA institutional members and the availability of institutional funds for both the hosting and delivery of conferences. In September 2001 DEFSA allocated the institutional hosts for the annual conferences from the time period 2002 to 2005 (DEFSA 2001). A year later, September 2002, the Management Committee discussed the impact of the mergers as well as the financial cut backs that were already being experienced within higher education (DEFSA 2002c). It was proposed that DEFSA should introduce longer periods between conferences and that alternative structures such as mini seminars should be considered.

The impact of the mergers was greater than expected. None of the conferences, as allocated in 2001, could be hosted by the identified institutions from 2003 onwards. The SABS Design Institute offered to assist DEFSA during the merger period and hosted the 2004 and 2005 DEFSA conferences. Keynote speakers were identified and invited for these two conferences and during this time period DEFSA was indebted to the support that was provided by the SABS Design Institute. From 2003 to 2005 it was not possible to present conferences at which academics were given the opportunity to deliver peer reviewed papers. However a positive aspect, that was evident during this period, was that ample time was provided for discipline discussion group sessions at the 2004 and 2005 conferences. A chair person was nominated for each discipline discussion group, prior to the conference. The discussion groups were requested to present a report to DEFSA, reflecting on the discussion that took place in each group. Topics such as staff workload, issues relating to research and curriculation challenges in relation to the promulgation of the HEQF were documented (DEFSA 2004, DEFSA 2005). Judging from the reports, conference attendees used the group discussions as an opportunity to exchange

questions pertaining to the impact of the mergers and national response to the proposed introduction of the HEQF. The DEFSA network was still in place and providing members with the opportunity to provide support relating to merger issues across institutions.

In 2006 the Nelson Mandela Metropolitan University hosted the first pre-merger conference followed by the fifth international conference that was offered by the Cape Peninsula University of Technology in 2007. This conference received a record breaking number of 130 abstracts and 200 conference delegates (DEFSA 2007b). The feedback that was received from the 2007 DEFSA conference reflects a plea for the inclusion of discussion group meetings in the programme (DEFSA 2007c). Evidently the group discussion sessions provide design educators with the opportunity to interact and exchange information across discipline and institutions.

Future of DEFSA (beyond 2009)

A glimpse into the future is seldom accurate, but careful strategic planning could assist in mapping the road ahead. Although DEFSA had excellent conference attendance in 2007, the proposed number for the 2009 conference has indicated a potential drop of 75 percent in conference attendance. The author is aware of the unique factors that have impacted on the 2009 conference, such as location and date of the event, but DEFSA will have to reinstate their effective network in order to be acknowledged as a worthy and effective promoter of design education. Institutional membership has also reduced significantly during the merger years In 2007 DEFSA had 11 Institutional members and 22 individual members and currently nine institutional members are registered with DEFSA. The assumption that can be made is that the highly effective network has reduced in size and as a result DEFSA is not fulfilling the liaison role between higher education institution and individuals effectively. In 2009 it also became apparent that due to the merger the contact details of the majority of the members have changed and that DEFSA had an extremely outdated membership contact list. These factors raise reasons for concern and require of the Forum the necessity to revisit their operation to ensure that DEFSA delivers on the aims as stated in the constitution.

In 2008, the DEFSA Management Committee took part in a strategic management planning session. The Committee was divided into three discussion groups that discussed the following three critical areas; DEFSA website, research and conference requirements and DEFSA profile. It became evident that these three areas are tightly interwoven and that the profile of DEFSA is dependant on a well organised peer reviewed conference that meets academic requirements as well as a revised website which could keep members up-to-date with the latest DEFSA activities. In addition the research discussion group has presented six recommendations to DEFSA for consideration to improve the DEFSA profile and as a result reinstate the effective network between design educators (DEFSA 2008). Relevant aspects pertinent to this study are extracted from the list of recommendations in order to identify the critical areas that needs to be addressed by DEFSA in the immediate future;

Debate topical design education issues

DEFSA should use conferences, workshops and seminars to stimulate debate on topical issues that are pertinent to design education in southern Africa. Actively engage in the matters that required attention such as the recurriculation of programme offering and increase in postgraduate design education programmes.

Redesign the DEFSA website to improve communication with members

The research cluster identified that the DEFSA website was in an embarrassingly bad state. Past conference papers are missing and the website information is outdated (DEFSA 2008). At the February 2009 Management Committee meeting, a committee member reported that his institution refused to fund his travelling costs to attend the meeting. The institution made this decision due to fact that he was not listed as a Committee member on the website and that the website indicates that the Forum focus on liaison activities between relevant primary secondary and in specific Universities of Technologies (DEFSA 2009). Closer inspection revealed that the DEFSA website was incorrectly updated and poorly maintained by the Forum over the past five years. Immediate action was taken and DEFSA appointed a website designer to redesign the ten year old website. The new website was launched in September 2009.

Rethink the purpose of the website to expand the DEFSA network

However the revised website is only the first step to address the concerns as presented to the Committee. DEFSA will have to rethink the purpose of the website. The previous website was only used for the publication of conference documents and basic information that relates to DEFSA. It is recommended that the new website should become the central communication channel of the Forum. Upcoming events, useful research articles, showcasing of national design activities and contact details of design educators could ensure that the website attracts regular visitors. The interaction that took place annually at conferences could be replaced with opportunities of more regular interaction could be achieved through a well maintained, regularly updated website.

Get the fundamental requirements right

Fundamental requirements refer to the basic, essential conditions that need to be in place when DEFSA engages with activities such as organising conferences and regular contact with members. To date, DEFSA has received severe criticism for not meeting the fundamental requirements. Conference proceedings have to meet the Department of Higher Education and Training requirements in order for authors to claim research output funding. It is essential for DEFSA to get the fundamental right to ensure compliance to higher education expectations.

Conclusion

DEFSA has made a significant contribution to the design education sector over the past 18 years. The Forum has organised twelve national conferences and five international conferences over this period of time. The DEFSA conferences provided design educators with the opportunities to connect and interact and as a result DEFSA has established a well connected network of design educators across southern Africa.

At the start of the millennium, DEFSA has already realised that the strength of the Forum is not in its formal membership but in its highly effective network (Hagen [S.a]). In 1999, DEFSA decided to extend the network to become a comprehensive network that links both private and public tertiary education, secondary education and industry (DEFSA 1999). Sadly, the restructuring and transformation of the higher education landscape has impacted negatively on the aspirations of the Forum, the offering of regular conferences and a reduction in the institutional membership. This event also exposed the weakness of DEFSA, which is that the network is dependant on the consistent efforts and inputs of key people to ensure that the links in the network remains connected.

Members of the Management Committee, the President and President-Elect are nominated by the institutional members. The Forum is dependant on the efforts, time and energy that are invested by these individuals in addition to their daily workload. Unfortunately, these individuals are not remunerated for their services and DEFSA has minimum leverage over the performance of the key representatives within the network. The Forum can only function at an optimal level if it is managed by self-motivated highly effective individuals that support the cause of design education.

Since 1991 DEFSA has witnessed the introduction of dramatic changes in the recurriculation of the technikon programme structure and expects even greater change with the implementation of the HEQF. To date, DEFSA has provided design educators the opportunity to debate national requirements and propose solutions relevant to the design education environment. DEFSA should remain to be actively engaged in topical design education issues and strive to foster design education in southern Africa region.

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Short Biography

Amanda Breytenbach is the Vice Dean of the Faculty of Art, Design and Architecture (FADA) at the University of Johannesburg. She is currently President of the Design Education Forum of Southern Africa (DEFSA) of which she has been an Executive Committee member for 10 years. Ms Breytenbach has also actively taken part in the development and promotion of the Interior Design discipline over the past 15 years. She is a member of the Education Committee that forms part of the South African Institute of the Interior Design Professions (IID).

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EXTENDING THE LEARNING LANDSCAPE: ADAPTING TO A NEW STUDENT

Helen BÜHRS, Mornay SCHOEMAN
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Abstract

According to Megan Hughes (2006) the generation that educators of the 21st Century have to deal with is referred to as "Generation Y". They represent the by-product of the previous generation, i.e. the "baby boomers", who heralded a "surge of new inventions and improvements" (Hughes 2006), allowing the next generation benefits of improved technology and a much easier life.

> *"The Y Generation doesn't like hard work, even when it's for its own benefit, and is very much in love with anything that's 'instant'. "(Hughes 2006)*

Design educators often adopt teaching and learning methods of a traditional nature. These practices may no longer be effective in the fast-paced world of tomorrow.

Recognising these challenges in our own institution and understanding what impact these may have on a national education system, a proposal of an alternative approach in skills and knowledge transfer within creative context has been implemented.

A series of interventions ranging from staff communication and wellbeing, to student development and support has been brought about through various media. Alternative interactive processes have been employed in the institution and continue to be developed. These interventions are described and discussed in this paper.
Extending the learning environment beyond the classroom and programme, contextualising the skills and knowledge gained is facilitated through the introduction of a Mentorship and Leadership Programme. A sense of ownership and responsibility has been created for the students, who have made an impact in their own communities. To date, 162 children within their communities have received input from our students, in various ways, ranging from literacy development, sporting activities to fund-raising.
Success of these interventions is evident in the following observed outcomes:

- *a lower staff turnover,*
- *higher student and staff productivity levels*
- *more positive environment for both staff and students*
- *an improvement in positive student feedback*
- *improvement in student retention rates*
- *growth in the organisation*

The outcomes are quantified by using human resource data, programme review forms, student academic results as well as growth in student numbers.
Our students have displayed openness to learning and discovering, and are exploring further than their immediate environment. Lecturers have noticed a change in attitude, class attendance and punctuality, with students taking responsibility for their own learning.

Keywords: *Interactive processes, productivity levels, learning, discovering and exploring, student ownership and responsibility*

Introduction

This paper serves to highlight and quantify some of the challenges experienced in a modern design education system. This was brought about by the lecturing staff who felt a sense of frustration due to an inability to impart knowledge to the majority of the student body in a way that was understandable to the student. Upon entering into discussion at an institutional level, it was established that lecturers

throughout the institution were experiencing similar concerns. The lecturer could no longer relate to the individuals or the group and they needed to understand why this change in dynamic had occurred. The institution's integrated education system had to adapt to meet the needs and minds of the next generation of designers. In 2006 we commenced with a series of varied interventions including interactive processes being implemented intuitively. The outcomes of these interventions produced an awareness and better understanding of the needs of our current student. This led to the introduction of a distinct initiative, established in 2009. A measurable and collaborative outcome has been reached, with effect not only on a personal level but as a whole within the group it's productivity level and within the community.

Through this process, the young, "modern" personality develops self-awareness, and identifies their role within their community and industry. In no way does this paper claim that the quandary is solved or ceases to be of relevance to the generation gap within the structure of design education. It does however demonstrate a vast improvement in the overall attitude of the students. The involvement within the various activities of how this has contributed to the change of that attitude is the content found in this paper.

The modern design student

Design educators often adopt teaching and learning methods of a traditional nature. These teaching methods may no longer be effective in the fast-paced world of today and tomorrow. Recognising these challenges in our own institution and understanding what impact it may have on a national education system, we propose an alternative approach in skills and knowledge transfer in a creative context.

In his abstract for *A Case for Vertical Studio*, Barnes (2008:34) explains that the primary goal for development for students is "self-motivation, independent thinking, and accelerated performance." He claims that the student having a choice in the various combinations and electives through the available "choice" results in the production of a much "higher student performance and a broader range of experiences than is possible in a traditional structure." His states that "the vertical studio system challenges traditional, sequenced design studio organization by allowing students of various developmental and skill levels to interact and compete with one another…" (Barnes 2008:34). We took this a step further by placing the students into a situation where they are all equal. None of them had experience in the various "non-traditional" activities we were expecting them to take part in. These activities are discussed under the headings Mentorship and Leadership Programmes. The non-traditional activities led us to examine the demographic of our students. This resulted in a better understanding of the individuals we were dealing with.

Most individuals, who study in the design field, do so out of choice. It was been established that 89 percent of our enrolments are made up of students whose first choice was to study design. A further 7 percent commenced studies in another career path and after discontinuing these studies enrolled for a design qualification. According to the applicants, the design qualification was originally their first choice, but family or friends advised them not to enrol into a creative programme, assuming is that it is not a lucrative industry or that it is perceived not to be an industry of a professional nature. We therefore deduced that 96 percent of our enrolments were the student's first choice of career and a natural expectation would be that they are motivated and passionate towards their chosen field of study.

The screening process for potential students at our institution is rigorous. It includes the submission of portfolio with a combined research component. Upon successful completion, the prospective student is invited to partake in an entrance test. The onsite test includes the assessment of their literacy skills, numeracy skills, and cognitive skills, drawing skills, problem solving ability and knowledge of the industry discipline and general knowledge. To determine the suitability of both the programme and career a personal interview with the student follows the test.

Despite the self-chosen career and intensity of the enrolment procedure, the following observations were made by the academic team with regards the student body as a whole.

- A lack of interpersonal skills
- A lack of self motivation

- Inappropriate behaviour within the learning environment
- A lack of individual accountability
- Inconsistent learning styles
- Frustration with the teaching methods of lecturers, who are of an older and more traditional generation
- Disrespectful and stressed students

It was established that the same obstacles identified by ourselves had concurred with the findings of Cairncross (2001), who established that "the acquisition of new skills or improving existing ones in areas like: interpersonal communication, teamwork, … and interpersonal skills," in the business world lead to "An increased focus on collaboration, cooperation and partnerships across departments, cultures, companies, sectors and borders." This therefore confirmed for us that the observations made were relevant and would have a direct impact on achieving a mutually beneficial collaboration, cooperation and partnership between lecturer and student.

Ultimately, learning appeared to be haphazard and the attention and commitment required from the students was inadequate. Teaching time was spent addressing life skills rather than imparting sound design knowledge. Furthermore, lecturers were not equipped to deal with these challenges appropriately. It was imperative to address these concerns if we were to see students succeed in the chosen career and the business world. As educators, we found it to be our responsibility to ensure that the students were able to achieve their potential by becoming aware of obstacles to their success.

Approaching the problem was a multi faceted task. You cannot isolate learning. One must consider the relevance of the person engaging in the learning process. When an individual perceives satisfaction, they are more likely to re-engage in that activity again. Simultaneously, one cannot disregard the external factors that may play a role in the learning process, for example; family, community, previous experience and circumstances.

According to Hughes (2006), the generation that educators of the 21st century have to deal with is "Generation Y". They are the by-product of the previous generation, "baby boomers", who brought about a "surge of new inventions and improvements", allowing the next generation a much easier life, reaping the benefits of this improved technology.

> *The Y Generation does not like hard work, even when it's for its own benefit, and is very much in love with anything that's 'instant'. (Hughes, 2006)*

Through the confirmation of research conducted we have established the contributing factors that determine the identity and makeup of the modern design student. The factors creating the frustration experienced by lecturers were identified. These factors were of a non-discipline specific nature, and this meant that the design lecturers where not qualified to deal with and address these types of concerns. The institution entered into consultation with a clinical psychologist to better understand a way forward in this regard.
Our institution to address the concerns raised implemented the following programmes.

- Mentorship Programme
- Leadership Programme

Mentorship Programme

Each final year student (third year) is assigned first and second year students. The aim of the mentorship programme is that the final year student is responsible for mentoring the first and second year students throughout the academic year. The final year mentors build a file of evidence throughout the year; including an initial analysis of each of their junior students, evaluating their strengths and weaknesses at an academic level. On completion of the analysis, the mentor is to draw up an action plan for each student, identifying the problems, and working towards a solution. Once the initial assessment and action plan are completed, the final year mentor students start building their file of evidence, highlighting the progress of each of their junior students.

Through this process, the mentor student completes a documented self-evaluation of the year. The mentor must determine whether they have been successful in achieving the desired results and document the findings. As not all the students can be guaranteed to take part or interact with their

final third year student it is important that the process is, with or without interaction, documented. The process of this programme is more important than the result, and is assessed with that in mind.
The mentorship programme implemented in January 2009 has thus not run its full course. The following is an indication of feedback received from final year students as well as junior students who participated in the programme.

The information in Table 1 derived from a sample group at the Western Cape campus and was approached using informal questioning methods.

Geographic Location of campus	Total Number of Participants/students	Positively experienced the programme as valuable & beneficial	Were indecisive about the value of the programme & its benefits	Negatively experienced the programme and saw no value/benefit in the programme
Cape Town	28 students	25 students	0 students	3 students
		(89, 3%)	(0%)	(10.7%)

Table 1: Cape Town Student Perceptions of the Mentorship Programme

The table shows a large percentage of the students found the mentorship programme beneficial. This indicated a positive motivation with the students to continue the programme.

The following is an indication of the experience & perceptions of the first, second and third year students under the mentorship programme and indicates possible improvements interpreted by the student feedback:

Positive

- Facilitated problem solving through group discussion
- Encouraged integration and mingling of students
- Assisted with idea generation and execution of assignments
- Enhanced new passion for field of study
- Encouraged peer review and assessment and promoted inter student learning methodologies
- Created comfortable learning environment
- Aided in the perceived communication gap experienced between lecturers and students
- Anxieties with regards future expectations were eliminated
- Increased feelings of motivation
- Heightened sense of achievement
- Increased affirmation of knowledge
- Confidence in decision making

Negative

- Sense of guilt for disturbing final year students
- Frustration with students not always fully committed
- Awareness of the need for structure and systems.

The above indicates that the students have gained the ability to express their newfound awareness of their own individual achievement, as well as contributing to the development of the student body and learning environment. The mentorship programme instilled a co-operative interactive learning process between students that encouraged integration between the various levels of study and disciplines at the institution.

Leadership Programme

The leadership programme, developed in conjunction with a clinical psychologist, included a structure that worked in cycles and addressed different competencies required to support and enhance the learning experience. In a multi-year approach, the programme is semi-structured in nature and exposes students to competencies as they are recognized. These modules would be further entrenched in the following year as students are to be introduced to cutting edge, leadership concepts

in each module. Thus, we work towards developing not only greater complexity but deeper understanding of the subject matter over a three-year period. The competencies that the programme attempts to develop are aligned with current leadership philosophy and trends in industries across the globe and cover important areas such as Emotional Intelligence (EQ), social responsibility, time management, resilience management and mentorship.

The facilitation philosophy of the programme is a combination of theory and experiential learning. The approach encourages students to look introspectively and share through semi-structured exercises, designed to raise awareness of the concept within them and thus develop specific competencies. However, students are encouraged to empower themselves, not only through awareness, but through addressing possible 'mental' blocks that could hamper a new found awareness and the direction it would take them. These exercises are facilitated in an interactional group format, by subject matter experts in each area being presented. Students are required to complete assignments that are practical, where the focus is on self-discovery of their true personality and motives.

The Social Responsibility Programme forms part of the Leadership Programme, it is developed through involving students in a community-based project that focuses on the empowerment of that community through the transfer of creative and non-discipline specific skills, rather than on creating dependencies. This is where students are encouraged through self-exploration to discover and explore beyond that which they know about themselves and their environment. The institution implemented the following programmes. The Shine Centre, in the Western Cape, and St Vincent's School for the Deaf, in Gauteng.

The Shine Centre, Western Cape

The Shine Centre initiative is bringing literacy and language enrichment to schoolchildren with reading difficulties. The Shine Centre stands for Support and Help In Education**.** Shine Centres are established in carefully selected schools where 99% of the children are historically or economically disadvantaged. The aim is to ensure that these children reach their full potential and receive support in language and literacy. The centre does this by encouraging the people and businesses from the community to support their local school in providing struggling learners with weekly lessons. (For more information on The Shine Centre visit http//www.theshinecentre.org.za.)

The institution's Western Cape campus adopted the Zonnebloem primary school. The student representative council established various committees that the students can choose to serve on. The idea behind this was that the college involvement would be constant and therefore produce a measurable and real difference in one place.

The committees are:

- One-on-one reading
  Undertaken by senior students (third year) this is an hour session of literacy skills done with a grade two learner one-on-one, the student must commit to one year.
- Sport initiative
  Students work on improving the sports grounds of the school and get the learner to participate in the process as well as encouraging participation in sport activities. Sports are season specific.
- Garden and playgrounds (outdoor spaces)
  Creating garden areas and getting learners interested in assisting in the creating and upkeep of these areas.
- Library assistant
  Students offer of their time to assist in the library, therefore allowing the library times to be extended, giving learners more time in the library space.
- Classroom assistant
  As the teachers have up to 45 young learners in a class, the students are there to assist the teacher in games and activities, getting to interact with learners that the teacher may not get to in the time allocated for a class.
- Upgrade of exterior
  The students established a fundraising committee. Their prime task is raising money from various community-based businesses, to help with the refurbishing and upgrading of the school.

St Vincent's School for the Deaf, Gauteng

A programme such as The Shine Centre has yet not been implemented in Gauteng. For this reason, a self-conceived programme was adopted and implemented at St Vincent's School for the Deaf in Johannesburg. St Vincent's School for the Deaf highlighted the following needs to be addressed in their school:

- Final year tertiary art learners needed to be exposed to the design industry. It was understood that hearing impaired learners do not easily enter a tertiary level of study, due to the language barrier encountered through their special needs.
- The nursery school facilities needed to be upgraded through the inclusion of an interactive play space to compliment the learning of gross motor skills
- The nursery school learners were not being stimulated through creative activity. This was because learners were required to complete additional hours of language training due to their needs. The teachers felt that since they had excluded creativity activities the learners were not developing a sense of self-awareness, spatial perception and a lack of ability to express their feelings and emotions.

The above were addressed in the following manners:

- Final year tertiary art learners have attended our Design Workshops. These Design Workshops are conducted to expose prospective students at the Grade 11 and 12 levels to a career in design. This initiative encouraged confidence in the students as far as their ability is concerned and highlighted for the teachers the potential ability of each individual learner. One of the four students intends furthering her studies in the field of design due to this intervention.
- The nursery school facilities have been upgraded. This included a conceptualization process conducted by our students and approved by the school. The students were required to interact with the nursery school learners and understand their needs. The interactive play area has resulted in an improvement of the development of the children as expressed in the feedback received from the Head of the nursery school.
- Weekly visits to the nursery school by our students included the production of creativity exercises determined by the students. These activities were to be relevant and age appropriate. The students were encouraged to interact with the children and to form relationships that were consistent and sustainable.

The students have continued to attend the initiative despite the syllabus coming to an end for the academic year.

The Leadership Programme was implemented In January 2009. The following is an indication of the perceptions the programme has evoked amongst the student body thus far. For the effect to be measured accurately the programme must run for the full three-year cycle only then can the objectives and aims to be truly experienced.

The information in Tables 2 and 3 derived from a sample group of varying quantities and was approached using both formal and informal questioning methods. Despite these variations, a similar deviation factor has been achieved. Refer to Appendix A for questionnaire and Appendix B for documented student comments.

Geographic Location of campus	Total Number of Participants/students	Positively experienced the programme as valuable & beneficial	Were indecisive about the value of the programme & its benefits	Negatively experienced the programme and saw no value/benefit in the programme
Pretoria	38 students	34 students	2 students	1 students
Johannesburg	35 students	29 students	3 students	3 students
	Total: 73	Total: 63	Total: 5	Total: 4
		(86,3%)	(6,8%)	(5.5%)

Table 2: Overall Student Perceptions of the Leadership Programme.

Pretoria Campus:				
Positively experienced the programme as valuable & beneficial	Were indecisive about the value of the programme & its benefits	Negatively experienced the programme and saw no value/benefit in the programme	Unusable questionnaires	Total Number of students
34 students (89,5%)	2 students (5,3%)	1 students (2,6%)	1 student (2,6%)	38 students (52,1%)
Johannesburg Campus:				
Positively experienced the programme as valuable & beneficial	Were indecisive about the value of the programme & its benefits	Negatively experienced the programme and saw no value/benefit in the programme	Unusable questionnaires	Total Number of students
29 students (83%)	3 students (8,6%)	3 students (8,6%)	0 students	35 students (48%)

Table 3: Pretoria and Johannesburg Campus Perceptions of Leadership Programme

The following experiences & perceptions of the Social Responsibility Programme and possible improvements have been highlighted by students:

- 98 percent of students experienced the community-based projects as a beneficial experience. Only 1,4 percent of the students found no benefit in their involvement in the community based projects
- Development of Gratitude
- Rewarding
- Increased collaboration between students & across departments
- Increased levels of energy & commitment
- Fun & exciting
- Acquired new skill & knowledge (sign language)
- Communication goes beyond verbal communication
- Increased confidence in the ability to experiment with new things
- Increased appreciation for life
- Increased acknowledgement, appreciation and respect for those who contribute selflessly to the care of the communities they serve
- Increased sense of joy in life

The necessary skills identified by Cairncross (2001) and the observations of the lack thereof in the students identified by the academic team at the institution have been addressed and achieved. These were recognized through the student comments as attached in the student feedback in Appendix B. The comments clearly state that the new external influence introduced through the programmes implemented has a profound impact on the individuals and their ability to interact successfully within their learning environment and communities at large.

The above interactive processes have been employed and continue to be developed addressing the challenges presented. Thus far, the structure of the institution including the teaching and learning methods has been considered. The relevance of these regarding their suitability of the newest generation addressed. The teaching and learning methods suitable to these types of learners for optimal reception and retention of knowledge and skills have been attended to.

Through these team projects, many of the skills shared in the theoretical component of the programme are put into practice, as the students have to manage not only the client but negotiate within that system and amongst each other, through their raised intrapersonal and interpersonal awareness. A further initiative was spawned from the process, initiated by the student representative council and implemented nationally addressing the existing problem of environmental awareness and recycling.

Deduction

Simultaneously, the persona of the individuals has been addressed, through the additional programmes implemented.

The effectiveness, although not completely measurable, has been experienced in the following way by the academic team responsible for the progress of the students.

- Effectiveness of the level of EQ skill
  An emotionally intelligent student is of more value in an already emotionally charged industry, where egos and varied opinions are part of the job. The EQ smart student will have the edge in that they are able to effectively manage their emotions and assess a situation before becoming part of the emotive circumstance. They will have an understanding of how varied personality types interact and will be able to adapt and gauge a situation from the outset. This makes them more productive and effective when needed.
- Mentoring program
  Through pairing senior students with a new intake of junior students, this gives them the ability to manage and interact in an environment of hierarchical role-players. This builds confidence in the senior students and creates a sense of belonging and importance relative to the junior students. The social structures that this type of interaction builds and strengthens is fundamental in the growing process, as it establishes social boundaries and explores effective social interaction, which is important in the design industry. This establishes not only roles and relationships in business but also between client and designer.
- Own personal achievement
  Acting as mentor and guide can establish a sense of achievement and responsibility within a student. As a facilitator of knowledge and “non-essential” (not curriculum specific) learning the student feels a sense of pride in their junior colleagues and establishes a social responsibility towards these individuals, taking the time to interact with them and check on their learning and emotional wellbeing. This in turn develops the senior’s social and interactive skills, which are both essential in the workplace. They also experience the process of taking responsibility for an individual’s growth and guidance.
- Sense of pride at own level of competence
  The sense of achievement that a student gets from making a difference to an individual or set task is very important. This serves to build confidence not only in the value of the intrinsic knowledge but also in that which is learnt on the side, the add-on’s to a well rounded individual. This results in the development of the individual not only as a designer but also as a functional part of society.
- Practice social skills
  Communication and presentation are part of the young designer’s toolkit when interacting in relation to society, not only in the work place between their peers, but also when dealing with clients. The development and practising of these skills is paramount and fundamental to successful integration into the work force.
- Social Responsibility Programme
  Extending the learning environment beyond the classroom and contextualising the skills and knowledge gained are facilitated through the introduction of the Shine Centre scheme in the Western Cape and a self-developed scheme in Gauteng. This has created a sense of ownership and responsibility for the student who has made an impact in his or her own community. To date, 162 children have received input from our students, in various ways, ranging from literacy development, exposure to creativity techniques and development, sporting activities, upgrading of facilities and resources and fund raising.
- Respect for environment and fellow citizens of earth

A clinical psychologist would initially facilitate the implementation of the Leadership Programme. Since it would form part of the official assessment procedure, students would readily take part. The ultimate objective, however, is that the students would eventually be able to implement and maintain the process independently. Witness the benefits gained through their own attitude adaptation and growth as individuals, taking ownership and responsibility for their actions both in and outside the classroom.
Direct and measurable successes of these interventions have been evident in the following outcomes demonstrated:

- Higher student productivity levels
- More positive environment for both staff and students
- A 43 percent improvement in qualitative student feedback derived from the Programme Review Form. Examples of Programme Review Forms can be sent to all interested parties via e-mail.
- A 6 percent improvement in student retention rates

The students appear to be more open to learning, discovering and exploring outside their immediate environment. Lecturers have noticed a change in attitude, class attendance and punctuality. Students are taking responsibility for their own learning. Their productivity levels are up and they approach their studies with passion and self-determination.

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Short Biography

Mornay Schoeman is the Campus Principal for Inscape Design College in Cape Town. Mornay says, "From the very first time I showed a fellow student how perspective worked, and they understood me, I felt that thrill of contributing to the knowledge base of another individual. This feeling is what drives the passion in me for what I do. Having been in design education for the past 17 years this passion has taken me in many directions, on many discoveries".

Helen Bührs is currently the Academic Manager of the Inscape Design College. She has extensive knowledge and experience in the following: academic strategic planning, general management, development of curricula, courseware and implementation thereof, co-ordination of all relevant courses, compilation of all documentation for accreditation purposes, interviewing and training of staff, student, lecturer and parent mediation. She is lecturing at all levels of Interior Design as well as Design Foundation, Interior Decorating and Architectural Draughting.

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Appendix A

Formal questionnaire given to students aimed at getting feedback as to the individual student opinion of the leadership process.

Leadership Programme and Community-Based Project Evaluation:

1. What expectations (fears/reservations/hopes) did you initially have of the Leadership programme? At the end of the programme, did those initial expectations remain unchanged or did they transform into something different?
2. What was your experience of the leadership programme?
3. What did you learn about yourself from the leadership programme?
4. What strengths did you discover about yourself through the programme?
5. What shortcomings did you discover about yourself through the process?
6. What was the impact of the leadership programme on you as a person and student?
7. What was especially difficult for you in terms of the leadership programme?
8. What was the most powerful thing that you took away at the end of the 8 week leadership process?
9. What were your initial expectations of the community-based project(fears/hopes/reservations)?
10. As you began to interact with your specific community did your initial expectations remain unchanged or did they transform into something different?
11. What was your experience of being involved in your specific community project?
12. What did you learn about yourself through this process?
13. What did you learn about the community you were involved in? Please note that this refers to all systems in that community, from children, teachers, admin staff etc?
14. What was the impact of interacting with your specific community, on you as a person/group?
15. What strengths and shortcomings did you discover about yourself while engaging in your specific community?
16. How did you empower your community?
17. Briefly describe the most powerful community based session you experienced and explain why it had such an impact on you?
18. If you had a magic wand and could change anything about the way in which you handled the community based project, what would that be and why?

Appendix B

Leader and Mentorship students' feedback

Skills developed through the LP programme/Improvements highlighted by students:

- Self-awareness
- Self-acceptance
- Leadership abilities/qualities
- Confidence (Belief in the self)
- Increased self empowerment
- Developed better team work
- Improved team dynamics
- Improved group/class cohesion
- Improved collaboration between group members
- Increased tolerance & respect for self and others
- Better listening skills
- Empathy
- Shift in thinking from a negative to a positive perspective
- Increased sensitivity to others needs & emotions
- Empowered to deal with confrontation in healthier ways
- Increased emotional self-control rather than impulsivity
- Move from reactive stance to a more proactive stance in resolving issues
- Acceptance of own limitations resulting in decrease in controlling (control freak) behaviours
- Increase in courage & strength to deal with obstacles
- Increased "Emotional Wisdom"
- Increased awareness of own prejudices
- Increased sensitivity to diversity of experiences of people i.t.o emotions, emotional triggers, reactions and viewpoints
- Increase in approachability of student to other students
- Improved boundary setting abilities
- Increased learning and knowledge creation
- Increased sense of hope, possibility & empowerment
- Increased ability to chose and create who they would like to be as a person, student and designer
- Increase in being positively focused or having a positive attitude to life, studies and relationships
- Increased ability to be resilient to stress
- Improved interpersonal skills and being able to relate to other people
- Increased cohesion across disciplines/departments within the college, i.e. between graphic design and interior design students. Thus a decrease in silo-type behaviour and mentality between department, i.e. between graphic and interior design students
- Increase in interpersonal awareness
- Improved interpersonal relationships
- Increase in self-acknowledgement
- Increase in self-acceptance and pride in self
- Increase in ability to be compassionate
- Increase in being open-minded
- Increase in ability to assume responsibility for own life
- Increase in respect & tolerance for others
- Increased awareness of hidden potential with the self
- Increased appreciation for the beauty in life
- Increase in ability to manage time more effectively
- Increased ability to create balance in life
- Increased sense of empowerment through the use practical skills and tools.

THE POLITICS OF CHANGE, CRAFT AND THE BAUHAUS REBORN: NEW RELATIONSHIPS IN DESIGN EDUCATION

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Abstract

South African education systems straddle the developed/developing world schism; an old-school-style Eurocentric view has long tussled with an Africanist dialectic. Educators struggle with access and upliftment issues whilst implementing outcomes-based learning programmes and simultaneously maintaining academic standards. At Nelson Mandela Metropolitan University (NMMU), conscious of the need to build future capacity, innovation in teaching and learning is paramount and the issues identified above are constantly under debate. Experimentation is an ongoing aspect of teaching methodology.

This innovation is especially necessary in teaching the design disciplines. The secondary school system makes little or no provision for the visual arts and even less for design. Students enter university with essentially no contextual reference point for design. So begins the complex process of creating literate, informed, socially conscious designers.

This paper will contextualise the situation facing design education in South Africa by citing examples where attempts are underway to bridge the gaps between the disciplines of Fashion Design, Graphic Design, Textile Design and Photography; by arguing the case for Trans-disciplinary Design as a possible solution to building design capacity in South Africa; and lastly to emphasise the importance, in a developing economy of the artisanal, the notion of crafting, and the sense of pride and achievement that results from mastery of hand skills as the keystone to the creative process – the place where design and art meet.

It attempts to present and clarify the context faced by many design educators in South Africa and highlights some of the innovative practice educators have to apply to encourage learning, grow African content and broaden design sensibility.

Key Words: *Craft, Innovative Methodology, Trans-disciplinary Design.*

South African education systems straddle the developed/developing world schism; an old-school-style Eurocentric view tussles with an Africanist approach, educators struggle with access and upliftment issues whilst implementing outcomes-based learning programmes and simultaneously maintaining academic standards. At Nelson Mandela Metropolitan University (NMMU), conscious of the need to build future capacity in design, innovation in teaching and learning is paramount. The issues identified above are constantly under debate and experimentation is an ongoing aspect of teaching methodology.

This paper reports research that attempts to clarify the context of design education in South Africa (SA), from the perspective of government policy and private interest (the "politics of change" in my title) and the realities of tertiary education and will then argue the need for placing more emphasis on the artisanal as a crucial outcome of the design education skill set. It will then present the case at NMMU's Department of Applied Design (for which the Bauhaus stands as allegory), where we are exploring alternate approaches to design education, especially with regard to trans-disciplinary design studies.

Up until 2005 design education in SA was restricted primarily to tertiary education (universities and colleges). With the exception of a handful of private schools the visual arts, and design in particular, was barely represented at secondary education level. With the presentation of a revised national curriculum for schools in 2002 (known as General Education and Training – GET) this was set to change, especially as it would affect the preparedness of school-leavers intending to study visual arts and design at tertiary level after finishing their schooling (South Africa. Department of Education,

2002). This revised policy was named Curriculum 2005, presented by the Department of Education (DoE) in 2002 to cover all school grades up to 9. This policy has its roots in the adoption of outcomes-based education (OBE), superseding the "traditional aims-and-objectives approach" in South African schools in 1997[1] and the subsequent phasing in of new curricula over the next ten years (South Africa. Department of Education, September 1997). Finally, in the Government Gazette of 27 July 2005, the new National Senior Certificate (NSC) for school-leavers was promulgated, making, yet again, provision for design education at a secondary school level, with the first cohort of graduates in 2008 (South Africa. Department of Education 2005:23). These policies were encouraging for design education and for the country as a whole. Design and the visual arts had tacitly been acknowledged as making an equivalent educational and economic contribution as the fields of agriculture, business, engineering, law, health sciences, mathematics and computers, for example. The previous political dispensation had never considered the creative arts as critical to cultural and economic development, with few schools offering these fields of learning and fewer tertiary institutions accepting them as entrance qualifications – a consequence of the DoE not giving design 'matric exemption' (university entrance) status.

At the same time the Department of Arts and Culture (DAC) was created to represent all issues concerning language, heritage, craft, arts and culture "to develop and preserve South African culture to ensure social cohesion and nation-building" (South Africa. Department of Arts and Culture 2004:3)[2]. Supporting the vision and mission was the implementation of a cultural industries growth strategy that

> "…capitalises on the economic potential of the craft, music, film, publishing, and design industries. The department gives support, in the form of financing, management capacity, advocacy, and networking, to developing Public Privet (sic) Partnerships (PPPs) and other initiatives that use culture as a tool for urban regeneration" (South Africa. Department of Arts and Culture 2005 8:para.1).

This was positive, as the value, contribution and potential of the "design industries" was recognised. The strategic plan for 2005 made reference to "design" again:

> "The Department continues to support industry initiatives that are consistent with the objective of job-creation and economic development. To this end, it is also focussing on the design, craft, book and publishing sectors" (South Africa. Department of Arts and Culture. 2005 8: para.2).

The intention to 'focus' on certain sectors supports the growing consensus that design is a powerful vehicle for social change and economic development, a view underscored by Grefé (2007:para. 5) as he expressed AIGA's role "…to stimulate thinking about design; to demonstrate the value of design…" and more recently, "…to advance designing as a professional craft, strategic tool and vital cultural force". The imperative for this is echoed by Ravi Naidoo, South Africa's 'design evangelist', because he believes that the creative industries (read design) have the potential to contribute towards building the South African economy. In 2004 he was proposing the formation of a Creative Coalition, to drive the policy makers into creating a cogent and coherent strategy for the creative industry.

> "Our country does not have a plan for the creative industries… and we need one, pronto. We need an over-arching, all-encompassing route map for the growth of the creative industries" (Naidoo 2004).

Included in his "route map" is "education in secondary schools and tertiary institutions". The revised school curriculum has fortunately been updated to incorporate this view (coincidently one may assume) and subsequently universities have enrolled the first group of NSC graduates in 2009. As a further endorsement in support of design as a key player in social and economic transformation the DAC, has established meaningful partnerships with the private sector and other strategic partners such as Marketing, (sic – should read "Media") Advertising, Publishing, Printing and Packaging [Sector Education and Training Authority] MAPPP-SETA to support existing strategies. The accredited training in the sector has been achieved through partnership with MAPPP-SETA on Learnerships and Skills

[1] This policy document from 12 years ago, already set out the specific outcomes for eight proposed learning areas, of which Arts and Culture is one and it has eight pre-defined outcomes.

[2] Since 2004 the vision and mission statement for the DAC has been consistent and first appears in its current form in the 2nd 3-year strategic plan.

Programmes. These programmes is (sic) an effort to ensure an increase in the skills base of the beneficiaries thus increasing their employability potential and also as a sustainable basis of an exit strategy in the near future (South Africa. Department of Arts and Culture. 2008 10:para. 2).

Seemingly the vision to 'grow' the viability of design and by inference design education, and build on its transformative potential comes from a variety of sources. Impumelelo, South Africa's foremost business-to-business, Black Economic Empowerment (BEE) publication included a special feature in their 2008 edition. Bryant (2008:37) advances the opinion that "South African creative industries and design can help overcome some of the development challenges facing the continent, as well as boosting the economy through generating wealth, creating jobs and growing exports". National retailer Woolworths has established a programme called "Making the difference through design" that targets schoolteachers and learners in grades 10-12 and introduces them to the many fascinating aspects of design through a resource that helps achieve the requisite OBE objectives. Woolworths is cognisant of design's role in building social cohesion and life skills.

In addition to providing role models, Making the Difference Through Design is also fostering a sense of pride and recognition for South African designs and designers and the contribution design makes to quality of life. Design education teaches valuable life skills such as problem solving and innovation, as well as entrepreneurial skills which learners will be able to apply in all aspects of their lives, no matter what career path they follow (Making the difference through design 2006:para. 5).

The South African Bureau of Standards' CEO also adds his voice to the design debate, agreeing that the contribution design makes to the national economy and its socio-cultural contribution to development "should be quantified in order to add to the stature of the profession and to place a real value on its contribution" (Kuscus 2008: 2). It is apparent that policies are in place to support design and the creative industries at GET and FET level through the DoE, that the DAC is supporting and funding the promotion of design as a force for social and economic change; that business, industry, professional and cultural organisations are committed to building design's capacity to influence the future track of South Africa and that therefore, collectively, design should be a national priority.

This could not be further from the truth. Unfortunately policy documents and strategic plans serve little value if there is no concerted call to action and a real, implementable rollout of ideals. Without total support from government to make design a national priority and the recognition that design, in all of its guises, can be a massive instrument for social change and economic development, it is unlikely that the private sector will be able to achieve that on their own. For example, the DAC budget for the Arts and Culture in Society programme for 2008 was R334 000 000. None of that money has been allocated to design. Previous strategic plans made specific mention of design as an important objective but the latest 3-year plan's oblique reference in the Arts, Social Development and Youth programme is the "Promotion of Arts Education and Training (AET)" by introducing an arts and culture curriculum and placing arts practitioners/educators in selected schools. To this end the strategy seems to be to establish a "framework of (sic) collaboration with [the] Department of Education…" (South Africa. Department of Education 2008: 32-35).[3]

It is important to consider the realities of the school education system. Large numbers of teachers are not adequately qualified or sufficiently experienced to teach arts and culture subjects. The decision to close teacher's training colleges in the 1990s has resulted in a desperate shortage of teachers. Although the budget for education[4] has grown from R39 billion in 1997 to R140 billion in 2009 in real terms, as a percentage of the national budget it has gone from 21 percent to 17 percent, and still there

[3] See the spreadsheet outlining the key departmental objectives in the *Strategic Plan 1 April 2008 – 31 March 2011*, pp. 32-35. The stated purpose here is to "Develop and promote arts and culture in South Africa and mainstream its role in social development". The intended objectives are encouraging and benefit broader arts and culture development by highlighting areas of critical need. Design is not one of them! The document further elucidates on the role of Cultural Development and International Co-operation, pp. 40-47 with the purpose being to "Improve economic and other development opportunities for South African arts and culture, nationally and globally, through mutually beneficial partnerships, thereby ensuring the sustainability of the sector." Puzzlingly there is no mention of design here either, especially considering that economic and developmental sustainability figure quite strongly in the statement.

[4] Comprehensive documentation, from 1997 to the present is available from the South African National Treasury website at http://www.treasury.gov.za/documents/ national% 20budget/default.aspx. Accessed 29 April 2009.

are schools without electricity, running water and the infrastructure necessary to run an efficient and fair (to the teachers and learners) OBE system. These are all constraints that diminish the roll-out of the arts and culture learning field in particular, as traditionally this was not seen as a core element of the old 'aims-and-objectives' teaching approach. Most importantly the teachers who are expected to implement the new system are products of the old.

An expectation that the Department of Trade and Industry (DTI) might have better foresight in their strategic planning is not apparent. According to Shakung (2009) of the DTI, at present there is no policy regarding design or the creative industries, nor any strategy to develop trade, investment or infrastructure regarding design, except where it has a direct effect on poverty alleviation. As this affects mostly co-operatives in rural areas, the emphasis here is on craft, the craft industry and small and micro enterprise development that can result in export opportunities. The National Industrial Policy Framework (NIPF) published by the DTI in August 2007 stated that: " 'During 2007/08 more comprehensive strategies will be developed in the following sectors: … (amongst others) - Creative Industries.' No detail (sic) project plan, project or KAP [key action plan] could be found in the document relating to the creative industries" (IDA World Design Survey Pilot Project: South African findings 2008: 31)[5]. The most damning views are expressed in the IDA World Design Survey Pilot Project by Smith (2008: 73) of IdeaSA "…South Africa has a weak institutional support system in government for design – South Africa does not have a design policy". Van Heerden (2008: 69), lead researcher for the project, points out that design and designers in South Africa are doing well at the present time, but that future concerns include "educational output, the lack of concern for intellectual property rights, the lack of coordination and the absence of a 'champion' from the side of government". Design could become a major vehicle for social and economic change, affecting the lives of millions of South Africans in a positive way, or it could remain a secondary player in the global creative industries boom that has seen the trade in design grow from $120 billion in 1996 to $220 billion in 2005 (Sanderson 2008: 97)[6].

Despite this complicating environment, the long-term prognosis if government responds positively is very good, enhancing the future capacity of the creative industries. Regardless, tertiary education, in a variety of design disciplines, continues to supply the industry with qualified graduates from 43 public and private institutions. The School of Music, Art and Design at NMMU graduates about 70 – 80 students per year from 3-year diploma and 4-year degree programmes in fashion, graphic design, photography and textile design. Cardinal to the success of the various programmes is the 'quality' of the students and the effectiveness of the teaching and learning.

The former is dictated by the FET schooling system and the latter by the adaptability of a programme to changing needs within the marketplace. Considering the issues to do with schooling suggests that levels of exposure to design and the creative industries varies significantly from school to school, and that actual hands-on experience, knowledge and craft skills are dependent on available resources like art materials, computers with graphic arts programs, teachers who are adequately trained in the visual arts, and studio-type infrastructure. Headmasters also need to be sufficiently informed about the creative economy to give arts and culture learning areas equivalent priority in the subject mix at their schools. For example, of the 337[7] schools in the Nelson Mandela Metropolitan Municipality, where NMMU is located, many indicate that they offer arts and culture to grade 9, but only 12 offer it in the critical grade 10-12 band, as a subject leading towards the NSC, and thus a valuable indicator of preparedness for university entrance.

This preparedness should focus on the importance of the artisanal as a vehicle for students to build skills and validate their design output. This is particularly significant in the light of the inequitable scenario in schools' art and design education that results in poor hand skills proficiency and crafting ability. For this reason, and because of the resurgence of interest in craft around the world, we at

[5] The complete document outlining the DTI's National Industry Policy Framework is available as a PDF from http://www.thedti.gov.za/nipf/nipf.htm.

[6] The data is retrieved from a presentation by the Icograda (International Council of Graphic Design Associations) MD to the Seoul Forum 2008, concerning the World Design Survey and appears as Appendix E in *IDA World Design Survey Pilot Project: South African findings.*

[7] Statistics according to the Eastern Cape Department of Education website. Available from http://www.ecdoe.gov.za/schools/1/all/7/all/School%20name. Accessed 30 April 2009. The data on schools offering arts and culture in grade 10-12 is confirmed by Jennifer Fabbri, art education officer at Nelson Mandela Metropolitan Art Museum.

NMMU have identified craft as a critical component of the creative process and its resultant output. The theme for this year's Design Indaba Conference in Cape Town clearly echoes this sentiment. Botha (2009), Design Indaba magazine editor, writes: "Craft is not an ethnic oddity, sentimental lesser to art and design, nor the naïve worship of the once-off and handmade. Craft is excellence, conviction, empowerment and raw innovation".

How does this relate to the university art school context and the symbiotic relationship between art, craft and design? The essential difference from our perspective resides in the change in focus from thinking, playing and experimenting whilst at art school to creating, crafting and selling when one leaves. In both instances 'stuff' is made but the significance of what is made and how it is crafted once the protective environment of the art school gives way to the real world is what makes the difference. No matter how great an idea or a concept may be in the beginning stages of the creative process, it will ultimately stand or fall based on the strength of its production, on the craft of its making. The quality of the creativity central to an artefact is equal to the quality of the creative output itself. This is where crafting has the power to affect how an artefact is received by its audience and how it is validated as a result. Of extreme importance is the growing numbers of entry level students[8] who display a lack of hand-skill dexterity and as a result require significant practice performing simple tasks which one would assume would be natural to someone wishing to study within the visual arts. For example, fashion students struggle to cut along a line with a pair of scissors or to sew in a straight line; many graphic design students are confounded by measuring systems and their application to drawing defined formats or constructing three-dimensional objects; accurate folding, manipulating of various drawing, painting and modelling media, crudeness of mark-making are further challenges. These underscore a growing deficit in crafting skills and experience.

The FET educational background presented at the start of this paper should contextualise why this phenomenon exists, but at NMMU we believe that there are other factors that contribute to the problem. Which digits of the hand are favoured in eye-hand co-ordination training seems to be the question. One may speculate that thumbs are the digits of choice, used to operate gaming consoles and mobile phones, favouring the power or primitive grip over the precision grip (Shim 2004).[9] Psychomotor skills that develop over a number of years as children progress through school, playing sport, drawing, practicing two- and three-dimensional perception exercises through conscious engagement in art practice, physics and mathematics, for example, and unconsciously through performing chores in the home etc. are not refined. Rather, the new generation at NMMU have a fearless sense of technology, a confidence and curiosity built from the new schooling system where group activities are commonplace and social integration is important. Media exposure drives opinion, and a keen interest in adrenalin-generating adventure activities is standard. Unfortunately none of these factors develops the refined and purposeful hand skills so critical to the art and design-making activity.

'Real' learning happens most effectively where psycho-motor skills, or hand-eye-co-ordination (Atherton 2005), and cognitive processes are balanced, allowing the idea or concept to be crafted and 'finished' in a way that enhances the perception of it. The inability to craft or finish an artefact well detracts from the resultant artefact, design or work, and effectively diminishes its intrinsic value. The fact that so few aspirant designers come to art school with sufficient experience of basic hand-skills is an indictment on a school learning system that has avoided psycho-motor development in favour of psycho-social and conceptual development. The art of craft needs to be resurrected in our art schools.

By reflecting on the history of the Bauhaus school it is possible to envisage a way forward. Established by the architect and theoretician Walter Gropius in Weimar, Germany, in 1919 it embodied the principle of 'construction', implicit in its name, by being the first comprehensive art and design school.

By 1926 the mantra of the Bauhaus was "art and technology: a new unity" (Meggs & Purvis 2006: 312), and the result of that ideology was the development of a refined and more sophisticated

[8] This observation results from views expressed by colleagues when we panel mark student work. Using pre-determined criteria for the assessment like 'concept', 'process', 'design' and 'technique' (which includes use of medium, construction and mounting; all hand-skill outcomes) the latter often features as problematic. We have had to institute specific workshops to train students in these skills, which have become increasingly absent over the last several years.

[9] Various examples of human hand prehension are shown by Shim in support of his doctoral research at Ball State University.

understanding of craft as a significant aspect of 'making'. Krukowski (1992:198-199) clarifies this by pointing out that the "dissolution of certain 'artificial barriers' ", imposed by tradition, allowed for art, craft and design to become more integrated. The Bauhaus artists became designers who used technology to craft artefacts for machine production. Intrinsic to their premise was the knowledge that art, craft and design could co-exist, that it was virtually impossible to separate them without losing the values that they individually fed into the process.

Craft, as an essential component of the art and design-making process, is important. Lees-Maffei (2004: 208) refers to the editorial in the March/April 2003 edition of Crafts magazine:

> In March 1973, in issue 1, an article called The Concept of Craft asked – among others – two questions: "What is Craft?" and "How does it differ on the one hand from industry and on the other hand from art?" 30 years on, a third question follows up on the second: "Does it matter?" Certainly today few makers consider the barriers between art, craft and design of such significance. Craft and industry are routinely partners, and many designers happily combine the making of one-offs with the production-line process…[and] the term craft is now simply "inadequate" to summarise the collaborative, interdisciplinary diversity of current practice.

Botha (2009) underlines how craft and technology co-exist:

> "Contributors [to the Design Indaba Conference 2009] were contacted by email, interviews conducted on Skype, photos taken with megapixels, words sculpted in Microsoft Office and layout on (sic) InDesign…speakers, exhibitors and media partners…seem to indicate that craft has achieved a new status, appealing to 21st century economics of scarcity, [and] product innovation…"

This is the backdrop upon which universities have to metaphorically paint, in their role as Higher Education and Training (HET) institutions for design and the visual arts. In South Africa we have to educate students who come from diverse cultural, language and socio-economic backgrounds, who have been schooled in a system that is equivalent but not equal, who decide to study disciplines which they have little or no prior experience of, and then 'transform' them into capable, savvy, informed, proficient and employable designers. Equally important in this task is to develop, within these young people, who frequently come from disadvantaged backgrounds, the understanding and practice of socially enlightened and responsible design and an awareness of their power, as designers, to influence change – to be leaders and innovators, rather than just followers and adopters.

To be able to achieve this goal at NMMU required that a review of the existing teaching and learning practice would need to be conducted. Aware of the trend towards a more integrative approach to design teaching in a number of universities and colleges [10] around the world and of the uptake of design thinking as a model for other disciplines such as management and marketing (West 2007)[11], for example, we, in the Department of Applied Design, explored the available options and introduced some significant changes to our outcomes and our methodology. Two events provoked the idea of trans-disciplinary design teaching. Firstly, by an edict of parliament in 2005, the HET environment was upturned with the rationalisation of universities, which saw the creation of NMMU through the merging of the former University of Port Elizabeth and the vocationally oriented former P E Technikon. Although the merger was initially met with some resistance from the respective constituencies, by 2009 there exists a vital and newfound sense of possibility and opportunity within the schools and departments comprising the Faculty of Arts, where all the design disciplines are based. Especially

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[10] The School of the Art Institute of Chicago and Rhode Island School of Design are two of the more well known institutions that have diverse, cross-disciplinary programmes, inclusive of broader liberal arts content and even options for subjects in the natural sciences and social sciences. Curriculum guides are available from http://www.saic.edu/ and http://www.risd.edu/.

[11] Harry West is vice-president for strategy and innovation at Continuum, a design and innovation consultancy in Boston. The video supporting the article presents the case for why the Rotman School of Management in Toronto has decided to place more emphasis on the growing importance of design thinking in business and further advocating how design education needs to evolve to encompass a balance between creative-right-brain and analytical-left-brain thinking. According to West, “the current education system is good at training people with narrowly defined skill sets". The time has come rather to integrate them.

significant is the fact that university-style programmes, with their freer range of subject choices, co-exist with structured vocational-style programmes, allowing for a diversity of study directions. All the design programmes are of the vocational type, being structured "to contain the locus of design knowledge within an individual field…a natural instinct given the traditionally accepted methods of establishing professionalism" (Mendoza, Bernasconi, & MacDonald 2007: 309).

Secondly, we recognised the problems inherent in this traditional-style structure that were no longer directed at creating a design graduate who would better serve the needs of 21st century society. Designers need to be able to adapt to changing environments and adopt whatever skills and processes are required to accommodate that change. Mendoza, Bernasconi and MacDonald (2007: 312) support this principle: "Creating these broader conceptualisations of design within the existing curriculum creates an environment which…will graduate a better prepared student". To be able to achieve the transformation of South African society and for design to become the 'vehicle for social and economic change' discussed previously one has to understand that design "is a process; its content is created when the context for the process is chosen". Thus, "delimiters such as 'interior', 'fashion', 'graphic'…"(Ibid) suggest the nature of the design process that needs to be applied to a particular design problem. The need to recurriculate the various design programmes for the near future has presented the opportunity to plot a trans-disciplinary path within the new structure.

'Trans-disciplinary' defines how our approach to this desired cross-pollination is applied as opposed to the term 'interdisciplinary'. Mostly the term 'interdisciplinary' is used to describe the process whereby there is some form of sharing or collaboration between disciplines but that they continue to remain distinct, existing within the predefined paradigm created by their delimitation. So graphic design, for example, may work with fashion design but may not work within fashion design. Or, more often, graphic design may work for fashion design but not with fashion design. Our intent with trans-disciplinary design is to break through these restrictive conventions and present design as a universal concept that permeates discipline delimiters to solve problems and depends upon different craft skills, techniques and processes for their execution. Using the same example would therefore show graphic designers and fashion designers using their conceptual ability, based on a universal or generic understanding of design, to solve either a fashion- or graphic design problem, and then pooling their resources of crafting, process experience and technique to execute the solution. Thus graphic design is within fashion design, fashion design is within graphic design, and both reside within the design environment. Obviously the product of fashion design is different to that of graphic design but we attempt, through an integrative teaching and learning environment, to dispense with the notion that design is a series of distinct and separate compartments, but is rather a set of parallel processes that allow students to intersect with the broader design community. We are not suggesting that we are attempting to create a 'universal' designer. The bodies of knowledge lodged within individual disciplines are too great and the skill sets required to implement them too specific for students to gain the necessary expertise in more than one discipline at a time. More important is the increased awareness of and sensitivity to other creative disciplines that is generated by the trans-disciplinary experience.

The first steps towards achieving this began with collapsing four departments and their related disciplines into two: Graphic Design and Photography became Visual Communication; Fashion Design and Textile Design and Technology became Fashion. To validate this structure academic post descriptors were adjusted to accommodate the change. There are now visual communication lecturers who teach within photography or graphic design. A lecturer in 'applied design' has the brief to teach fashion, graphic design and photography[12]. The notion of elitism within the delimitations of design is in the throes of being demolished and students and staff are accepting the refreshing dynamic this is adding to the teaching and learning environment. To maintain this energy required considerable encouragement, persuasion and substantiation to staff as to why this was a healthy and achievable practice. Many were trapped in the discipline-specific, behaviourist, teacher-centred paradigm that excluded any possibility of integration with other areas of design or of considering any other methodology. Through this process of merging departments and blurring roles something new and exciting is emerging. A few examples should illustrate the evolving way forward:

[12] This portfolio comprises experience and qualification in graphic design and photography at theoretical and practical level, with the obvious aesthetic sensibility associated with the disciplines. The fashion component is add-on and required that the incumbent gain additional knowledge concerning contemporary culture, costume development and fashion discourse, which are all theory-based.

- Project briefings occur in a 'round table' (often with smaller groups) environment that encourages open discussion, questioning and thinking, and allows students the opportunity to contextualise. Jackson (2008: 67) refers to this as a gestalt approach to learning where problem solving happens through a "learning by thinking" process.
- Projects are devised to include outputs that require involvement from other disciplines. So a visual communication brief could include a design component (print advertising, corporate identity or publication, for example) an imaging component (staged location photography, formal portraiture, photo-journalism) a marketing component (brand strategy development, CI manual, marketing roll-out) and possibly interior design (shop front, office environment, event staging). The implications of this sort of brief are that students from different disciplines are 'forced' to work together towards an end that has a direct influence on not only their own assessment, but also that of the others in the group to which they have been allocated as co-workers – they all depend on the integrity of each other for their personal success.
- Criticism sessions are guided by lecturers but are largely student-driven and each project incorporates a number of process criticisms before submission. Importantly, the sessions allow for further experience and learning within disciplines which are not necessarily the students' primary learning field and this facilitates the uptake of process and technical knowledge within those other fields.
- As the students progress to higher academic levels, their acquisition of knowledge and experience leads them to more complex, real-world, collaborative projects. Although "sequential and mechanical" (Jackson 2008: 66) learning is essential to building a foundation for cognitive processes, the lower levels tend to a more behaviourist style due to the unequal nature of the skill-sets they bring to their studies. As their crafting skills improve so the learning paradigm shifts to conceptual development and a less teacher-centred approach.
- Visual communication and fashion come together in an annual 'megaproject', which is the culmination of various intersections throughout the year. A fashion and media extravaganza is staged towards the end of the academic year that merges all the experience and knowledge gained by the students in an event that involves graphic-, fashion-, textile-, interior design and photography. Conceptualised in its entirety by the students, and incorporating everything that they have learned over the course of three or four years, this is the measure of how much they understand about trans-disciplinary design and the critical professional, social, technical and craft skills that they have gained working in a cognitive environment that encouraged free and critical thinking.

In this environment the students are able to experience what we believe is a more immersive design encounter, allowing them to share their learning and perception experiences with their peers and their lecturers. Because the projects are context-driven, within this trans-disciplinary space the opportunity to engage in narrative discourse frequently presents itself, and storytelling is a natural outgrowth. "[Today,] the act of designing goes well beyond the creation of mere art[e]fact to embody individual and collective values, engage senses and emotions, support processes, and shape our world view" (Danko, Meneely & Portillo 2006: 10).

What we are attempting to achieve at NMMU is not unique. We are not pioneering a new way of being or inventing a new teaching methodology – it is a timely recognition of the need to change the existing status quo and to align the teaching and learning environment with the realities of the world in which we now operate. The methodologies need to be adapted accordingly. It also suggests that innovation can come from an evolutionary process and need not be catastrophic. A lot of what we used to do is appropriate, effective and still relevant. The trans-disciplinary design experiment is ongoing and we are discovering new ways of aligning our design programmes with perceptions and reality, to build better designers for the future. Craft and 'crafting' will continue to grow in importance as excellence of production is emphasised. Innovation, flexibility and accessibility have to be the forces that build a design curriculum that 'fits' the needs of a society in transformation. Despite the politics of obfuscation, craft will remain the cornerstone of design education and the trans-disciplinary experiment at NMMU will continue to inform the future track of our applied design programmes.

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Short Biography

Bruce Cadle is lecturer in Graphic Design and HoD of Applied Design at NMMU. He has been an educator since mirror balls were invented, believes in the indomitable human spirit and that designers will (should) save the world. He is interested in the exciting possibilities that occur when design and art disciplines converge and new possibilities for synergy emerge. Oh, and fabulous food and liquor is what helps him stay focused and real.

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NEGATING THE SERIF: POSTCOLONIAL APPROACHES TO TYPEFACE DESIGN

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Abstract

The practice and the teaching of Typography in South Africa has yet to undergo radical or substantive changes in light of the multiple shifts and developments in critical thinking that has taken place in Academia and contemporary visual practice in recent years. While contemporaneous thinking has "forced a change" in many disciplines in light of the Postmodern, Post Colonial and other "Post" posturing that challenge the dominance of Europe and the West as the centre, very little of the core imperatives of these schools of thought has found its way into the development and thinking around Typography in South Africa save a few seminal books and teachers.

The reason for limited pedagogical experimentation in the field can often be attributed to the fact that the typographic canon has been deemed sacrosanct, readily perpetuated by institutions in the belief that if students and courses in Typography are to have any enduring value, the canon must be propagated unaltered and unscathed.

By analysing typography currently being developed and commercialised for distribution by the Iron Age Font Foundry, a project funded by the University of Cape Town's Research and Innovation Centre comprising of designers and academics I will investigate alternative approaches that Postcolonial thought strategies make possible for both the practice and teaching of Typography. The very names of typefaces forged in this foundry, the ideas behind them and most importantly the visual language and resonances of these letterforms highlight an alternative approach that negates Western dominance of history and production in the realm of Typography.

This paper challenges the typographer to be an active, conscious author of meaning in both practice and teaching evidenced in critical engagement with typography from the past and active, multidisciplinary engagement with social and political issues in the development of typefaces for the present. The paper will highlight the important role that contemporary font foundries can play commercially and conceptually through this multidisciplinary approach.

Key words*: Postcolonial, typography, hegemony, canon*

Introduction

All typography, when viewed in a critical light, engages culture and history to greater or lesser extents. The "how" and "why" of this phenomenon is a well-trodden field in structuralist and linguistic debate. The aim of this paper is to foreground Postcolonial thought strategies in the realm of typography and as a consequence negotiates the cultural and historical resonance of established and newly developed typography. This will manifest in a critical engagement with the typographic canons of the West and the encouragement of a broader theoretical and historical subject matter that can be used to generate typography and typographic research. The paper introduces some of the problems encountered in the uncritical use and propagation of distinctly Western and European typography, best embodied by the seriffed letter of Roman type. The work of a contemporary font foundry (Iron Age Font Foundry) will be discussed as a case study of the production of typefaces engaging the ideas of Postcolonial theory and Subaltern Studies. The paper moots this interdisciplinary approach (Typography in dialogue with Postcolonial theory and Subaltern studies) as an important tool in the critical education of typographers because of the alternative methods of research and production that it encourages.

The writings of Premesh Lalu (2009) are critical in understanding how Subaltern Studies and Postcolonial theory as a guiding idea or framework can assist designers in their production and research. Lalu's most recent work, "The Deaths of Hintsa" discusses the key imperatives of Subaltern Studies in the South African context and engages the problematic legacy of the Colonial Archive[1]. The

[1] Lalu, P.2009. *The deaths of Hintsa*: *Post apartheid South Africa and the shape of the recurring past*. Cape Town: HSRC Press.

key features of his argument in my reading of his work that I wish to engage with in this paper can be summarised in two points. The first point is his concept of anti-disciplinarity, the idea that the agency of the Historian (or in our case the typographer) is not truly independent or liberated to follow significant paths of inquiry if his/her work is simply forced to respond or reproduce an equivalence of the existing colonial canon or archive of his/her discipline, albeit with a different focus. To do so in many ways, argues Lalu, is to simply limit "agency" to a sentimental ideal. Instead he argues for new models of critical enquiry that will as a consequence have radical trajectories based less on the regime of disciplinary orthodoxy and more on the possibility of "imaginary structures".

The second point is his conception of Subaltern Studies as a vehicle to form a "rupture" in the systems of knowledge of the very discipline it is engaging by thinking at the limits of the discipline so that both the research produced and the very modes of enquiry mount a challenge to the discipline itself.

These Postcolonial conceptual strategies mooted by Lalu, when considered in the field of typographic design, contain, in my view, a great deal of promise, challenging the discipline of Typography by negating traditional disciplinary canons and archives in favour of research that challenges the epistemic status quo. In one manner of speaking, this paper will explore ways to recover and intimate aspects of subaltern knowledge, history and culture using typographic design as the central mode of critical enquiry.

Critical views of the Serif: More than just a pretty Face

The serif, or the "little foot" at the base of letters in Roman typefaces that can be observed in typefaces such as "Times Roman", "Bodoni" and "Old Style" to name a few variations, has its origin in the Greek and Roman writing tradition. Capital inscribing letters etched into marble plaques and cut into stone columns are the earliest recorded examples of these visual devices[2]. The seriffed letter is ubiquitous in the medieval cathedrals of Southern and Northern Europe. Gravestones and memorials of great leaders present and past often employ seriffed type. The ubiquity of the seriffed Roman can be attributed in large part to British designers such as William Caslon and John Baskerville who used seriffed Roman style moveable type for the production of the first high volume printed works of the day including newspapers and novels, making the seriffed Roman the most widely read face in the Western and Northern hemisphere in the 1700's. As such, it can be seen as the quintessential printed letter of the early British Empire and modern industrial Europe[3]. The high cost involved in producing new typefaces in conjunction with the equipment and the closely guarded expertise and technology of the printing trade made a wider range of typefaces from a greater diversity of designers impossible.

[2] Trojan's Column in Rome is one of the earliest examples of Capital Roman Serif letters carved into the surface of a public structure dating circa AD114.

[3] This conclusion is deduced from a survey conducted at the Rare Books and Special Collections Department at the University of Cape Town in 2009 that include both popular and specialist publications spanning Europe from 1520 to the 1900's that substantiate this claim.

Figure 1: Greek Inspired Type specimen

Figure 2: Type Specimen Sheet from the W. Caslon Foundry

In South Africa, the seriffed Roman has an established history. A survey of archeological discoveries and museum collections from the Iziko South African Museums Social History Collection reveal many intriguing ways the seriffed Roman was employed in the Cape dating from the 1700's. Numerous examples of the Dutch East Indian Company logo that featured the seriffed letters "VOC" appear on both mundane domestic items, as well as highly prized objects of importance ranging from coins, furniture, ceramics and trophies. The variety of these items attests to the prominence of the seriffed Roman in the bureaucracy and daily life of the gentry in early Cape society. Perhaps most striking of the objects in the Social History collection is the official seal for the slave and deeds registry, used to mark Slavery certificates of indenture on which the seriffed Roman features prominently, seemingly enjoying the same ubiquitous presence it did in Europe and the West and representing, in it's various uses, corporate power, institutionalised governance and legislative authority in Early Cape life[4].

[4] An extensive review of domestic, military and state artefacts incorporating typography and inscribed letters in some form housed in the Cape Slave Lodge Museum Collection and the Castle of Good Hope Museum Collection of Iziko Museums of South Africa was conducted by the author in 2008 to reveal the ubiquity of the seriffed letter in objects as diverse as ceramic plates to trophies. The silver smiths at the Cape ensured the propagation of this letter form, most of whom came from Europe or Britain servicing the Dutch East India Company and certain retail shops that sold silver cutlery. The range of these objects bearing seriffed letters provides proof of the seriffed letter's role in the various aspects of private and corporate life in the Cape for both noble and ignoble use. The definitive work on Cape silver and silversmiths is the Stephen Welz reference book *Cape Silver and Silversmiths* including fine examples of how the seriff was used in the employ of the ruling power to mark military trophies, communion cups, wine labels, and most notably a "staff of office" presented to Andries Waterboer, chief of the Griquas, marking the first written agreement between English authorities and native rulers in the Cape

Figure 3: Dutch East Indian Company plate with "VOC" logo

Figure 4: Slave Registry Seal.

A critical view must acknowledge that however grand or mundane the associations we now have with the serif or seriffed typefaces, it also contains another association, that of the Colonist. The uncritical use of the seriffed letter and indeed of most typefaces developed in the West and Europe is a stumbling block, particularly when designers are unfamiliar with the historical resonance of these typefaces and use them to present content or ideas that jar with their historical legacy. There are numerous books published that deal with Postcolonial cultural resistance and Journals that exist for the express purposes of negating Western and European dominance in Visual practice that are published in a Roman Serif. This is a tenuous match between forms and content, symptomatic of the relatively minor role that typography plays in the intellectual imagination of academics. The creation of purposely designed fonts or broader research into more conceptually cohesive type is not an unreasonable challenge to the professional academic interested in the broadest possible impact of his writing. The visual identity for newly liberated nations can also be affected by unreflective typographic practice, as was evident in South Africa in 1996.

Home Groan

After the first democratic election in 1994, the South African government prioritised the overhaul of all official letterheads and departmental signage in an attempt to portray a new visual identity. In addition it embarked on designing a new coat of arms. Yet, in spite of the desire to create an afro-centric visual language for the South African Democracy[5] that would foreground political and ideological independence and liberation, the weight of typography as a conceptual tool was ignored as the typeface "Gill Sans" was selected in 1996 for all official government department corporate identity signage and communication. Although the typeface selected by the government did not contain a serif, it is world renowned as the leading modern British typeface, made famous for its effective use in the British National Rail signage system that continues to this day. The typeface used for the revised National Coat of Arms is a derivative of Helvetica, an equally famous typeface with a strong European association. The choice of these typefaces is conceptually confusing when one considers the attention to detail given to the motto on the coat of arms (based on the Khoi San language) and the iconography derived from the indigenous rock art, elephant tusks and proteas, all of which was conceptualised[6] to represent an "authentic" South African image. These typefaces could be said to work against the aspirations of a young, Postcolonial democracy trying to portray a revised identity.

[5] Based on the official explanation and motivation for the corporate identity of the South African Government Departments contained in the designers style guide.

[6] See Bredekamp's essay: *A cultural heritage of a democratic South Africa: An Overview.*

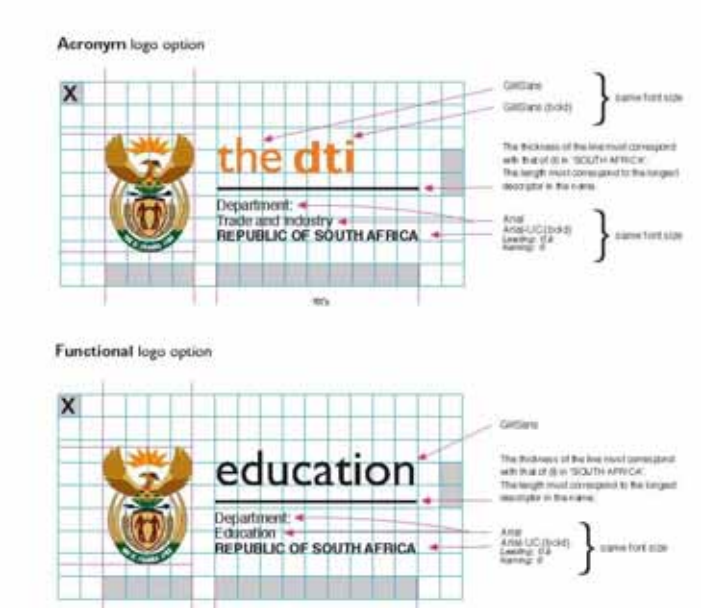


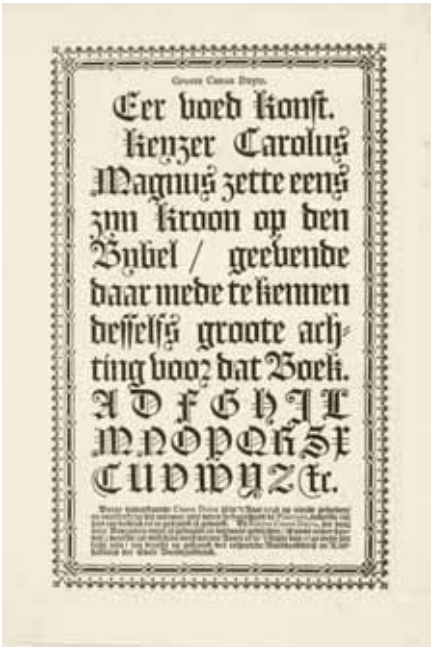
Figure 5: National style guide for Government signage

Figure 6: South African Coat of Arms

Cultural and political associations of letterforms

Is it possible to speak of letters embodying the abstract notions of Nation or Empire? Research into the use of typefaces in the last century to achieve political ends or resonate cultural meaning clearly shows that it is indeed possible to approach letters as conduits for the abstract ideas of Nationhood and Heritage. The German Blackletter typeface was used to print the first Gutenberg Bible. As such, it gained an important place in the psyche of the German nation. It was used many years later in the form of Fraktur, declared by Hitler to be the official typeface of the Third Reich, to be used in signage, badges and documents. Hitler infamously employed it for the cover of "Mein Kampf", making visible his desire to be seen as supportive of German heritage and national ideals[7]. The release by Trennert of the typeface called "Blizzard" in 1938 is an explicit example of a typeface designed for National Socialist Germany using the words "Heil Hitler!" printed in various sizes in the type catalogue used to promote it[8]. There also are examples of other politically minded typefaces produced in Germany shortly before World War Two in the collection of type historian Jan Thollenard that include swastikas as part of the official typeface set.

[7] David Jury. 2002. *About Face. Reviving the rules of Typography*. Singapore: Rotovision.
[8] See De Jong,C, Purvis,A, and Tholenaar,J.(Eds). 2009. *A visual history of typefaces and graphic Styles*. Hong Kong: Taschen.


Eer boeb konſt.
kienzer Carolus
Magnus zette eens
zm kroon op den
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A D F G H I L
M N O P Q R S T
C U V W Y Z &c.

Figure 7: An Example of Blackletter Type

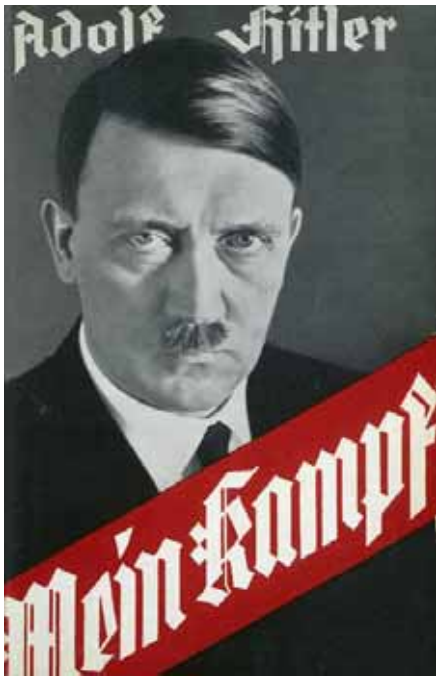

Figure 8: Fraktur used for Mein Kampf

A present day example that further illustrates the Social and Political resonance of type can be seen in the recent American presidential campaign of 2009. The runner up to the American presidency, John McCain used his participation in the Vietnam War as both a pilot and prisoner of war to great effect in presenting himself as a hero to the American electorate. The typography used in his campaign reflected his desire to be seen in this light, as "Optima" was selected for signage and promotional material. Optima is the same typeface used in the iconic Vietnam War memorial. The typeface, already part of the American patriotic imagination because of this national symbol of civic duty and sacrifice was used in his campaign for constructing a particular visual identity[9].

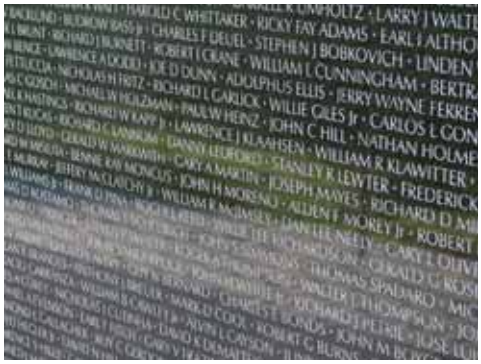

Figure 9: Vietnam Veterans Wall

Figure 10: John McCain Campaign

Jonathan Barnbrook, an influential British designer currently working in the field of Typography, makes the conscious decision to bring both the name and form of all of his typefaces into the social and political arena. The typeface that most directly illustrates this is his "Shock and Awe" typeface released in 2004. The letters in his alphabet have their origin in the lettering of the Enola Gay, the plane that dropped the first atomic bomb on Hiroshima. The term itself "Shock and Awe" is a military term used to describe the first stages of warfare when heavy artillery is used to demonstrate firepower and destructive ability to opposing forces. The explication in his recently published book about the typeface is clearly seeking to engage those who read and use the typeface in relation to form and origin:

[9] The Vietnam Veterans Wall remains arguably the most widely viewed military memorial due to the "Moving Wall" project instituted by John Devitt in 1980 with the express purpose of taking a smaller replica of the wall to as many American states as possible for temporary exhibition. Twenty-five years of uninterrupted exhibitions continue to this day.

> "Once a font has been used or comes from something of great social significance does this affect every other usage? The cultural resonance of typefaces … is rarely discussed" (Barnbrook 2007:186).

Typefaces always act as signifiers to broader meanings and associations however relative this may at first appear. In the realm of Linguistic Theory, as much as the division between "imago" and "logos" was mooted by the likes of Saussure, Derrida and other structuralists, the division between "imago" and "logos" is in practice fictitious. Johanne Drucker (1996: 245) succinctly puts this debate in perspective:

> "All various activities that typography can engage in the production of value: pictorial analogy, emotional expression, formal iconic imagery, the freeing of linguistic elements from traditional syntactic relations and arranging them in field – like structures demonstrate it's ability to participate in the production of signified value".

The Archaeology of form

The Iron Age Font Foundry was formed in 2008 consisting of academics and designers from the Faculty of Humanities at the University of Cape Town. As a result of its conceptual location in the Humanities it is not surprising that the significant social, cultural and material aspects of the South African past were a focal point for research. From a formal point of view, it was decided at the very first meeting in 2008 that utilitarian perfection could not in itself hold the key to exciting typographic research in light of the digital revolution that made perfectly balanced and shaped letters easily achievable with software. As with painting in the wake of the camera, a broader enquiry into the nature and socio-political possibilities of typography was seen as acceptable and beneficial.

In South Africa there is already a strong tradition of foregrounding cultural and political ideas in the creation of typography. The post apartheid era created conditions favourable to the publication of "i – Juisi" magazine, founded by Garth Walker.[10] This magazine became a platform and cult icon for experimental post apartheid Typography and Design. Of special note is *"National Typografika"* in issue eleven and *"National Typografika Two"* in issue seventeen. These editions focused exclusively on typography and showcased the desire designers had to engage in broader cultural circles after the oppressive ideological system of apartheid ended. Typefaces ranging from the celebration of black owned barber shops to typefaces designed in response to the austere and almost sinister headquarters of the South African secret service was created and displayed. These typefaces are important as they stretch the idea of type design to the limits, annunciating political and social meaning and using the diverse sources as the basis for the development of letter forms.

Figure 11: i-Juisy typography feature "Afro Alphabet"

[10] i-Juisy magazine was founded by Garth Walker in 1995. It continues to be produced to this day with themed editions dictating the content of the submissions eventually printed. The author is aware of twenty– five editions.

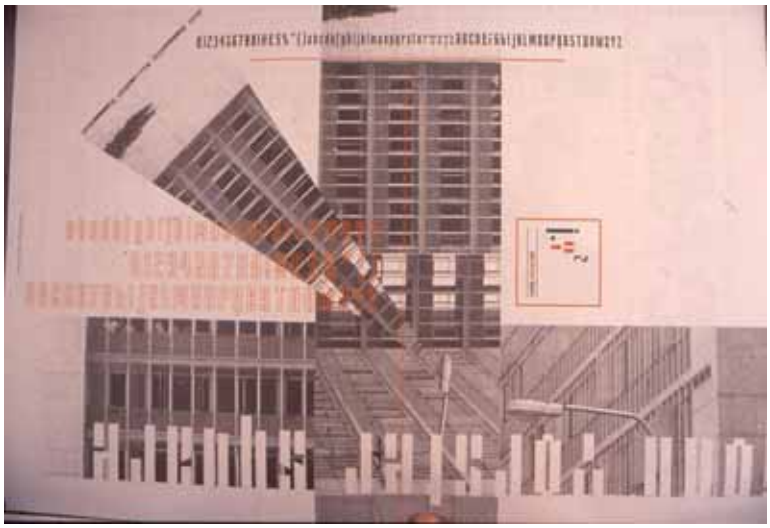

Figure 12: i-Juisy typography feature "Vorster Square".

Saki Mafundikwa has produced a seminal book in the postcolonial canon of typography in South Africa with his "Afrikan Alphabet", showcasing the body of knowledge and writing traditions that exists in Africa and that is mostly ignored in my view as a result of institutional indifference. Recent groundbreaking publications and exhibitions about the writing tradition in Timbuktu[11] is a significant step toward a re-discovery of subjugated histories and a powerful reminder of what the African intellectual tradition has to offer academia as broader creative influences emerge, explicated by a growing number of scholars.

The Designers Colophon

In keeping with the central ideas of Premesh Lalu and his warnings to not merely produce an equivalence to current colonial disciplinary archives as we engage the subaltern subject, the Iron Age Font Foundry was careful not to simply alter existing letters in the hope of making them appear more indigenous, or producing fonts that in some way referenced existing ones, in so doing falling into the conceptual trap mentioned by Lalu, i.e. simply producing a predictable response. Instead, the cultural resonance and the politics of material heritage of the Museums of South Africa and their most important artefacts became the starting point in the design of alternative letterforms. This modus operandi resulted in Zulu headrests, Queen Anne antique furniture, and the Mapungubwe gold rhino being selected for the design process. There were exceptions, notably the typeface Kaggen that celebrated aspects of the Khoi people's beliefs in the form of typography. The paragraphs that follow briefly detail three typefaces produced by the Iron Age Font Foundry in 2008. They are seen as secondary to engaging with the glyph specimens themselves. The Typefaces discussed below are Mapangubwe, Heirloom and Kaggen.

Mapangubwe Typeface

The first font designed by the Foundry was inspired by the ancient African city of Mapungubwe, excavated in the 1930's. Of all the artefacts researched from the excavation site, the famed gold rhino sculpture of Mapungubwe was most influential in the design of the typeface. Subsequent research into the discovery and excavation of the Mapungubwe site revealed conspicuous absences and silences in public and academic publications since its discovery that suggest in the author's view Apartheid state control over publication about the artefacts and civilization of Mapungubwe that spoke perhaps too loudly of highly developed metal and agricultural industries before the arrival of Europeans. The design process demanded that designers visit the Museums that housed the artefacts as well as studying books and essays that contained images and descriptions of the artefact. In all the descriptions read, impressions formed and commentary received about the formal elements of the gold rhino, it was the ears and tail of the rhino that were regarded as most intriguing. They are very

[11] Jeppie,S and Diagne, S (eds). 2008. The meanings of Timbuktu. Cape Town: HSRC

delicate, well observed and elegant. These apexes became the defining feature of the visual structure (ascenders and descenders) of the typeface Mapangubwe.

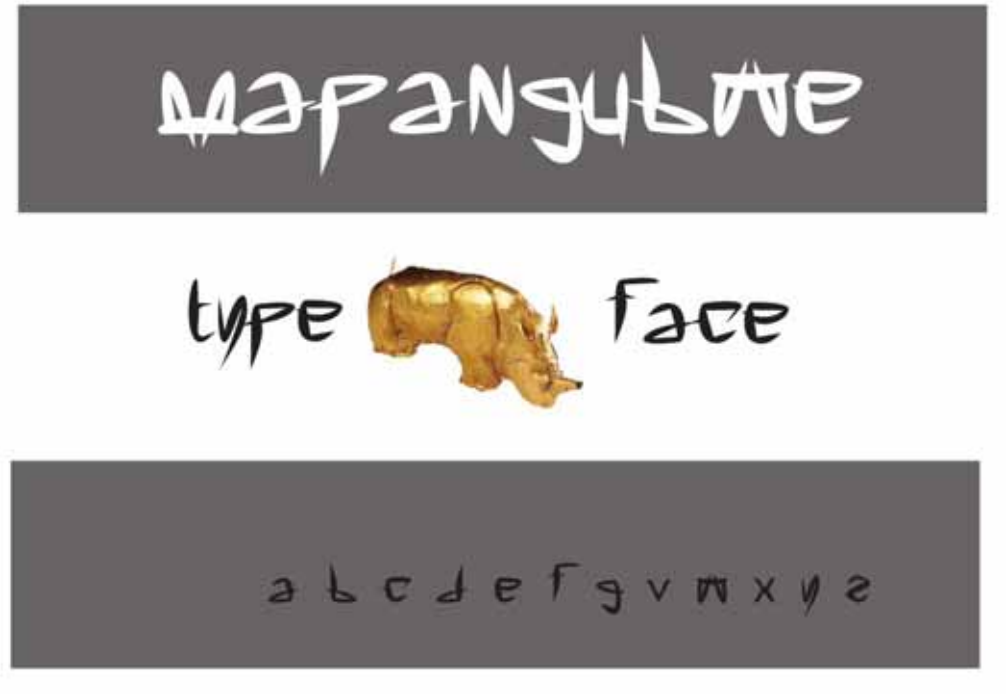

Figure 13: Mapangubwe Typeface Specimen

Heirloom Typeface

Queen Anne era heirlooms are often prized for their ball-and-claw design, seen as a highpoint in British craftsmanship and highly desirable in the antiques trade in Cape Town based on the author's discussion with important dealerships. A wide range of ball-and–claw furniture exists in the collections of Iziko Museums of South Africa, including Bertram house and the William Fehr collection. A critical look at the origin of the ball-and-claw design reveals diverse cultural influences including Asian artefacts dating from the 18th century that feature the claws of dragons clutching pearls[12] that undoubtedly influenced the ball-and claw form. The idea of Imperial innovation and craftsmanship resulting in the ball-and-claw form is a deceptive design myth still prevalent in the minds of many antique dealers the author has encountered. African staffs and headrests that feature Zoomorphic shapes and claws from the same period do not enjoy the same prominence and popularity in the market often treated as curios when they are traded. This inspired the typeface Heirloom. Heirloom is visually deceptive in its form: although having the appearance of being a Gothic, European Blackletter, it is in fact designed entirely from the form and diamond shaped decorations (amasumpa) of a Zulu headrest. Its aim is to interrogate and undermine assumptions related to originality and "purity" in design. Heirloom as a title is thus used critically, visually questioning the division between a curio and heirloom.

[12] See Vandal, N. 1990.Queen Anne Furniture: History, Design and Construction. Connecticut:Taunton.

Figure 14: Heirloom typeface Specimen

Kaggen Typeface

Kaggen is a central Deity of the Khoisan people, often described as a large mantis. The Afrikaans name for the praying mantis acknowledges this history: Hottentotsgod, roughly translated as “God of the Khoisan”. Every letterform was designed in relation to the actual claw of a Preying Mantis. Both the letterforms and the name of the typeface are very direct in pointing to this history. Many of the stories relating to Kaggen are included in the specimen sheet accompanying the typeface to stimulate research into San history and cultural beliefs. Although this typeface was not based on an artefact as such, it engages subjugated cultures and works with the histories and beliefs obscured by the Colonial project fitting well into the conceptual objectives of the foundry.

Figure 15: Kaggen Typeface Specimen

Concluding remarks

Postcolonial theory and Subaltern Studies is valuable as a pedagogical approach to Typography as it encourages a critical stance to the Discipline and the Canon. Typography produced using this frame does not fit easily into existing categories of typographic research, as in the case of the Iron Age Font Foundry that use artifacts and aspects of indigenous cultural beliefs as the conceptual basis for typographic design, but will share, as with all projects involved in the recovery of subjugated traditions, peoples or cultures, a critique of the Colonial project and the desire to annunciate in alternative ways. A multidisciplinary approach to Typographic design sees both the medium of Typography and

Postcolonial theory being extended into new areas of engagement. Typography designed through this dialogue extends the typographic archive beyond the limiting categories of the discipline such as Serif or Sans Serif, calling attention away from the technical category of appearance in favour of drawing attention to the conceptual conditions of development.

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Figure references

Figure 1: Type specimen Sheet, 1768, J Enschede, Taschen Typography Archive. http://www.taschen.com/pages/en/community/archive_type_1/index.4.htm [15 October 2009]

Figure 2: William Caslon's Type Specimen Sheet, 1923, Taschen Typography Archive. http://www.taschen.com/pages/en/community/archive_type_1/1054.william_caslons_type_specimen_sheet_facsimile.htm?view=text_pics&title=caslon&year_from=&year_til=&location=&type_foundry=&main_page=1 [15 October 2009]

Figure 3: Dutch East Indian Company plate featuring "VOC" Logo, Iziko Social History Collection. http://www.iziko.org.za/sh/resources/highlights/shist021.html [15 October 2009]

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Figure 7: Izaak and Enschede' Type Foundry specimen sheet, 1748, Taschen Type Archive. http://www.taschen.com/pages/en/community/archive_type_1/33.proef_van_letteren.htm?view=pics_only&title=&year_from=&year_til=1922&location=&type_foundry=&main_page=1 [15 October 2009]

Figure 8: Fraktur used for Mein Kampf. Citation pending.

Figure 9: Names of Vietnam veterans at Vietnam Veterans Memorial in Washington, D.C by Hu Totya. http://commons.wikimedia.org/wiki/File:Names_of_Vietnam_Veterans.jpg [15 October 2009]

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Figure 11: 2002 i-Jusi, *National Typografika*. Durban: Orange Juice Design.

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Figure 13: Iron Age Font Foundry Specimen sheet 2008. Collection of the author.

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Figure 16: Iron Age Font Foundry Specimen sheet 2008. Collection of the author.

Short Biography

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CREATIVE INDUSTRIES, CREATIVE SOLUTIONS: DEVELOPMENTS IN A WORK- INTEGRATED LEARNING PROJECT IN DURBAN

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Abstract

The creative and cultural industries form a significant employment sector in both the Thames Gateway region in England and the Durban Metropolitan Area in South Africa. Whilst successful completion of a degree has increased the chances of employment and career options for learners in both countries, employability may also be increased through work experience.

This paper reports on work in progress on a demonstrator project in the form of a Creative and Cultural Industries (CCI) Studio/Work Laboratory, that will offer work integrated learning (WIL) within the Department of Visual Communication Design at the Durban University of Technology (DUT), in collaboration with the University of East London (UEL). Once embedded, the intention is to transfer the model to other sub-specialities within the CCI as well as other disciplines at DUT.

The project is intended to provide the opportunity for senior Graphic Design students to follow their design process all the way from briefing and earliest ideas through to final production and delivery to clients, including dealing with professional and administrative work such as costing, accounting and payments. These have either not been possible in the DUT's Programme to date, or have not included the financial aspects associated with design undertaken in the world of work.

In reporting on progress the paper examines the value of work-integrated learning in contributing to employability as well as the signposting, information advice and guidance that is necessary for learners who may not have even considered creative careers. The challenges of employer engagement are also considered at an institutional level.

Key Words: *Graphic Design, working studio, work- integrated learning/WIL, research project*

Introduction

The "Creative Industries, Creative Solutions" Research Project is a collaboration between the Graphic Design Programme in the Department of Visual Communication Design (DVCD) at the Durban University of Technology (DUT), South Africa; and the "Continuum" unit of the University of East London (UEL) UK, which focuses on Access and Widening Participation in Tertiary Education. The British Council has funded the project through their Educational Partnerships in Africa (EPA) programme. The Project aims to set up a working Graphic Design studio within the Graphic Design Programme as a means of widening participation and developing Work-Integrated Learning (WIL) elements in the courses offered by DVCD. In this studio, students will experience the whole commercial process of the industry from briefing to production, including financial processes, in a protected and mentored environment.

This paper compares the South African and English contexts of the project, briefly mentioning relevant similarities and differences between the partner institutions, the cities where they are situated, the creative industries in these cities, and aspects of WIL provision and requirements. Then the paper reports on progress made to date, along with indications of changes that have become necessary as a result of new data. In particular reference is made to the Business Plan written for the Project, which discusses feedback from students, staff, and industry liaison; Financial Management; Premises and equipment; and Staffing and managing the project. It further discusses issues of clients and types of work to be sought.

The project is intended as a response to the requirement that WIL be included in all courses taught at the DUT, and as an attempt at widening participation in the DVCD, in the sense of successfully widening the range of backgrounds from which students are drawn. WIL as a course component has

had a confusing past for many in Tertiary Education, as the distinctions between WIL, Experiential Learning, Co-operative Education, In-Service Training (or Learning), Work-Based Learning, and so on, have not always been clearly defined or distinguished. One current definition, from the Commission for Higher Education (CHE)'s Programme Evaluation Criteria, is:

> "A component of a learning programme that focuses on the application of theory in an authentic, work-based context. It addresses specific competences identified for the acquisition of a qualification, which relate to the development of skills that will make the learner employable and will assist in developing his/her personal skills. Employer and professional bodies are involved in the assessment of experiential learning, together with academic staff." (CHE 2008: 43)

Enhancing employability is clearly at the heart of this definition, as by extension is entrepreneurialism, which could be viewed as a form of "self-employability".

Although the area may have been inspired by such pre-industrial practices as apprenticeships, the current theoretical basis in use at the DUT still primarily derives from the work of Kolb (1984) whose model of the learning process "explores the cyclical process of learning from Experience through Reflection and Conceptualising to Action and on to further Experience" (Pickles and Greenway 2007: 1) His model, referred to as Experiential Learning, was not specifically intended to encourage learning in an Employment setting, but was rather an exploration of the way people learn by doing, in any setting. Kolb's work has been criticized, amongst other reasons, for over-simplifying a complex process, and for ignoring aspects of the process that did not fit into the phases of his model or their sequence. (Pickles and Greenway 2007: 3-11)

Nevertheless, the Tertiary Education Sector in South Africa has taken up the benefits of learning through practice. In particular, it has become a distinguishing characteristic of the University of Technology (UoT) subsector. In their previous guise as technikons, UoTs were comparable to the old British Polytechnics: UEL, as an ex-Polytechnic, is thus a natural partner for DUT in this project.

Context

International

The Creative and Cultural industries, of which the profession of Graphic Design is a part, may not have been perceived as economically significant in the past. Yet they are one of six "flagship" economic sectors earmarked by the government of Taiwan as most promising for investment and development along with "bio-tech, health care, high-end agriculture, tourism, [and] green energy" (Schuman 2009: 2). The Taiwan government expects these sectors to be the most significant in the world within the next decade, yet there is little investment or development in the Creative and Cultural industries from the South African government (with the possible exception of the film industry). Similarly, according to Hudson (2009) and Storan (2009), the Creative Industries sector is now one of the largest generators of wealth in the London area, if not the largest. So far, interestingly, it has not been possible to find out the value of the sector in KwaZulu-Natal province (KZN). The DVCD has a list of industry contacts running to nearly one hundred and fifty entries, but this does not indicate how many people are employed. Nor is it known how complete this list is. Likewise, although it is possible to find out companies' ad spend, the total value of above- and below-the-line design and all the other services that a graphic designer may provide, has not been possible to find. This suggests that the context of the sector is poorly known in KZN.

The Partner Institutions

The partner institutions embody significant similarities and differences. The DUT draws its students mostly from the province of KwaZulu-Natal, on the Eastern seaboard of South Africa, and primarily from within 50km of Durban itself. Within this area students are drawn from a very wide range of economic backgrounds: some have come from severely disadvantaged backgrounds, whereas a fortunate few may arrive at College in their own new cars.

In the course of an initial visit to UEL, Professor John Storan and Tony Hudson, our co-manager for the project, provided a great deal of background information on their institution and its context (Hudson 2009, Storan 2009). UEL serves a wide area of the "East End" of London, traditionally an

impoverished area with a large immigrant population, poorly served by secondary and tertiary education; to a lesser extent it serves the broader "Thames Gateway" or estuary region. Most students there leave school without the necessary qualifications and skills for Tertiary education. As a result, UEL faces similar challenges to a South African UoT in terms of under prepared students and economically disadvantaged backgrounds.

However, there are significant differences between the institutions. Students at UEL come from 120 countries including the UK, bringing a wide variety of language/cultural backgrounds. Over 70 percent of UEL students are 21 or over when they enter the university, according to Hudson (2009) and Storan (2009). This both necessitates and is a result of extensive outreach work, for which UEL employs over 30 outreach specialists. In the DVCD the proportion of mature students is much lower: the large majority enters the department straight from school, according to the applicants' responses on their entrance forms.

Because of the higher average student age, and the resulting domestic and other non-academic pressures their students face, UEL employs a number of course structures and models, including numerous part-time and on-line offerings. At present the DVCD offers only full-time courses at the National Diploma level, although part-time study is available at BTech and MTech levels. There are no on-line or modularized offerings. UEL further provides a fast-track access course to prepare students for tertiary education, and RPL processes, although they acknowledge difficulties with this (Hudson 2009, Storan 2009). DVCD is a participant in a roughly parallel Faculty Extended Curriculum Programme (ECP).

UEL lays great emphasis on student preparation and retention, and considerable research into both dropouts and graduate destinations has been conducted. All UEL courses must include an "employability strand" although this may be implicit. Late-registering students have been identified as being particularly vulnerable, and inventive interventions have been developed to assist them, e.g. using video, Facebook, YouTube and SMS forms (Hudson 2009, Storan 2009). Dropout rates and "throughput" are also of great concern at DUT, but less progress has been made in researching causes and specific forms of vulnerability.

Courses at UEL are funded per student module completed (Hudson 2009, Storan 2009), rather than per entire qualification completed, as in South Africa. This arrangement allows for much greater flexibility than is possible at DUT, but does require the more disjointed modular structure.

Education Issues in South Africa and Kwazulu-Natal

Education in South Africa, and specifically in KwaZulu-Natal, at all levels, struggles with a number of serious issues that impact quite severely on access and widening participation.

Health problems for school students include the AIDS pandemic, which, along with various other causes, has resulted in huge numbers of orphans. Health, finance and other reasons have resulted in over 400,000 South African school age children either dropping out of school prematurely or never attending in the first place (Govender 2009: 4). The rate of teenage pregnancy between 1991 and 2003 for KZN varied between 8.9 percent and 13.3 percent, depending on the definitions used, and year-by-year. South Africa's rate as a whole varied between 10.4-16.4 percent (South African Department of Health 2002).

The majority of students leave school in South Africa without the academic qualifications necessary to continue to tertiary education (see e.g. Bloch 2009), so the pool of potential students who qualify "normally" for admission to the course is limited. "The matric pass rate in KwaZulu-Natal decreased to 57.8 percent in 2008 compared to the 63.8 percent pass rate" in 2007 (SAPA: 2008.). In 2004 and 2005 only about 25 percent of school-leavers in South Africa achieved the level required for university entrance (South African Yearbook 2007, quoted at wiki-educator: 2009). Although the requirements for UoT Diploma entrance are slightly more relaxed, these figures give an idea of the scale of the problem. Again, these figures only indicate the numbers who qualify for tertiary education: they do not mention those who cannot afford it. So the progression rate from Secondary to Tertiary education must be even lower. Issues of access, continuing education, or widening participation are therefore huge in South Africa, but resources are not. Tertiary institutions in particular, such as the DUT, are largely unable to help those who do not reach the required standards: the institutional rules forbid their recruitment (Durban University of Technology, 2009) and the resources are at present inadequate to

address the problem. The recently revised new Higher Education Qualifications Framework (South Africa, Department of Education, 2007) was intended to delineate a single educational framework for all students and all courses. However, despite these claims, it does not make adequate or acceptable provision for the articulation of Access or Foundation courses or even the courses run by FET colleges with formal higher Education degree or diploma courses. Those who have not achieved the required minimum Matriculation grades seem to have been simply condemned to vocational education without a serious pathway for later access to Tertiary Higher Education.

Financial hardship and the need to earn a living further impacts on the ability of the Department to retain many Black students within the system after completing the initial National Diploma. The proportion of non-White students drops by nearly half from third Year for the Diploma to the BTech (4th Year) – from between 51 and 66 percent in the undergraduate years to 28% in BTech (Andrew, 2009). All these factors thus hinder the potential progress of the DVCD towards a demographically representative student body, faculty, and industry, the ultimate objective of transformation (Pityana 2004).

The Project studio is intended to encourage retention of these students, and support the transformation of the DVCD and the Graphic Design industry. Although the numbers involved initially will be small, the studio will be an example of how students can gain valuable work experience and employment while studying, and increase their chances of employment once the BTech is completed. Similarly, the project should contribute to changing the current misconceptions of the profession and discipline. Achieving this will both grow the discipline and should help to widen participation, another aim of the project.

Education for Graphic Design in Durban

Education in Graphic Design at the DUT and its predecessors has been experiential for decades, in the sense that students were expected to apply their knowledge in doing actual design work, but until fairly recently it was not possible to include much experience of genuine industry conditions or constraints. Lecturers emulated industry conditions and followed industry requirements, but the process was incomplete in the absence of the industry itself. Although there were frequent individual projects involving industry, it took the efforts of Dennis Purvis and other colleagues to cement into place our extensive current relationships and routine industry-simulation provision.

The Graphic Design industry in the Durban area emphatically did not want to engage with the standard work-placement model of WIL for students. At an industry liaison meeting in 2006 (Department of Graphic Design 2006), industry representatives made it clear that they did not feel this model was appropriate for them. The reasons for this were primarily that studios and agencies in the area are typically small, with less than ten staff. They cannot generally spare staff to mentor or supervise a non-productive person for more than a couple of hours, unless that person is going to remain with them for some time, and so justify the investment of time and effort.

Partly in response to this obstacle, the Graphic Design Programme has developed an industry-simulation model of WIL for students within the National Diploma. Industry representatives come to the DUT and set, mentor, and criticize projects in collaboration with lecturing staff. These projects give students the experience of working with practising Creative Directors, some of whose timetables and criticisms are much tougher than lecturers'. This model has been highly successful, both with students and with industry, to the extent that about 80 percent of applied projects in Third Year are now run this way. Regular partners include Garth Walker Design (formerly Orange Juice Design), Disturbance Design, Amnesty International, Mr. Price Stores, House and Leisure magazine, the Sunday Tribune newspaper, and for the first time in 2009, the Durban branch of the TBWA advertising agency (Purvis, 2009).

Industry simulation is accepted in the new Higher Education Qualifications Framework (HEQF) of the South African Department of Education, but only at the lesser level of certificates and diplomas, up to National Qualifications Framework (NQF) Level 6, and in the "Professional" Bachelor's degree, at Level 8 (Honours level). It is not specifically excluded from other qualifications, but the role and extent of WIL in degree programmes generally seems to remain ill-defined. This is clearly a problem to be faced as the DUT re-curriculates for the new HEQF.

Despite this experiential provision, both employers and graduates have indicated that the lack particularly of production experience and financial knowledge were two of the most important shortcomings of their preparation for work in Graphic Design. A project that will fill this gap must therefore be beneficial, both in preparing the students and by so doing making them more employable. In addition, it demonstrates to employers that their concerns are taken seriously.

The Project to date

The aims of the project

The project aims to close the circle of work experience in Graphic Design education by extending the student's experience to the full completion of project. The department concerned intends that it should do this by providing experience in the business and production sides of Graphic Design, through the establishment of a working Graphic Design studio within the programme. Secondarily, the department intends that it should provide Third Stream Income for the Department.

Specifically, the primary aims of the project are:

- To establish a Graphic Design, work integrated learning environment that provides a real time/ real life, Graphic Design and Advertising business experience for students. This includes student engagement in final production and management processes, thereby increasing employability, and facilitating entrepreneurship.
- To broaden relationships with employers through mentorship and design brief exchanges.

Secondarily:

- To generate third stream income for the DUT and for students, in order to sustain the studio.
- To offer staff access to information regarding technology issues and business practice. (EPA Business Plan, 09:3)
- To broaden relationships with industry suppliers and associated industries.
- To serve as a research testing ground and demonstrator for further DUT/WIL projects.

The Studio's primary mandate is to facilitate education in Graphic Design and Advertising Business Practice. This means that students will be required to engage with all spheres of the business of running a Graphic Design and Advertising Studio. (EPA Business Plan, 09:3)

Brief research amongst British Graphic Design institutions suggests that this form of work-experience is not common. The difficulties of establishing and maintaining a client base were given to us as important hindrances in the UK, in the course of conversations with students and staff at the Design and Art Direction annual Student Exhibition in London (June 2009). Many of the courses whose personnel the project personnel spoke to were located in areas with smaller Graphic Design sectors than Durban; others had not been able to establish the kinds of links that the DVCD academic staff have either with industry or with clients; still others seemed not to have thought of the idea. On the other hand, it does seem to have been common in the United States in the past, if not at present, according to comments by Prof. Teal Triggs of the London College of Communication (August 2009).

Markets

Potential markets for the project's work have been identified as including:

- DUT faculties, academic and administrative departments requiring informal visual communication and design. This work will be produced in strict adherence to the DUT's Corporate Identity Specifications.
- University of KwaZulu Natal, faculties and departments requiring informal visual communication and design. This work will also be produced in strict adherence to the UKZN's Corporate Identity Specifications.
- Advertising and Design Studios – mentored 'agency brief' projects; online logo, illustration and photography bank.
- NGOs and non-profit organizations.

Services for these client groups will be structured to circumvent conflicts of interest with industry and the DUT's in-house Design Studio. (EPA Business Plan, 2009:4). Other tertiary institutions do not have competing units.

Business Plan and Finances

The overall Business Plan includes a detailed Marketing Plan, with SWOT analysis, marketing and advertising Objectives, the intended perceptions of the project on the part of the intended market segments, and financial forecasts. In financial terms it is intended that the project should be self-sustaining, and in fact generate a sufficient surplus to enable it both to continue after the initial British Council funding, and to contribute to the finances of the Department. To this end DVCD academic staff have engaged in efforts to raise funds for further equipment to offer a printing service within the DUT. This service is intended to cross-finance the studio if necessary and relieves pressure to be profitable.

The financial forecast is optimistic, and it must be admitted that at this stage there are many unknowns, which could alter these projections radically. However, given the number of potential clients in the target market groups, it does not seem unrealistic at this stage.

In researching the feasibility of these plans Project personnel visited the Departments of Somatology, Chiropractic, and Mechanical Engineering within the DUT, all of which operate comparable WIL units. Project personnel have also had discussions with external industry contacts. These visits were to explore the models used by the other DUT departments for this sort of WIL/Third Stream Income project, to explore the need for the services the Project Studio intends to offer, and to discuss the risks and possibilities with industry. Feedback has also been sought from students and the other staff in the programme. In general the response has been very positive, with both industry and the internal DUT Design unit in particular allaying a number of our concerns.

Premises and equipment

DVCD academic staff investigated a number of possible locations for the Studio, but all involved either disruption to functioning elements of the Department or the need for substantial renovations. The option that seemed to require the least of these was our eventual choice, the Attic. This had been set up as a gallery-cum-photographic studio, but was underused. Situating the studio there is a more efficient use of the space; plus it is a very interesting room. It should also remain possible to make space available within this room for photographic work should this be necessary. The main disadvantage of this space is its remoteness from the entrances, but it was felt that with good signage this could be overcome. Work has progressed rapidly in designing and setting up this space, and a very exciting ambience is developing there.

The EPA funding will provide equipment for two designers. The Graphic Design Programme will therefore provide matching equipment until such time as the project can generate finances for its own. In addition, Project staff are keen to finance the acquisition of large format printers with which to offer a printing service to staff and students at the DUT, and have engaged with the Technology Transfer and Innovation Directorate and submitted fundraising proposals for this.

Staffing and managing the project

The Project is run by a Studio Manager (SM), who is also lecturer-in-charge for the duration of the EPA funding. He will run the Studio on a day-to-day basis, and act as Creative Director. His deputy will be an Assistant Studio Manager (ASM), an MTech student, whose role will centre on Client Service and Production Management, with the potential of taking over as Studio Manager after the initial funded period if the project is successful. Four students will act as Designer/ Art Directors, under the SM and ASM. In addition it is hoped to include Third Year students on short-term bases as part of their Professional Design Practice subject.

The two senior staff will be primarily responsible for generating work for the studio, distributing it to the student designers, and managing the workflow and administration. Students will be required to work to cost and deadline, and account for their time and expenses. The studio's bookkeeping will be open to all the participants, in order that students learn its financial workings. Their experience will thus mirror that of working in a professional studio.

The main stumbling block encountered has been in the administrative, logistical and financial areas. As this type of project is still unusual in the DUT, many of the systems required are either not in place, still being worked out, or too unfamiliar to be efficient. A number of such issues have taken a great deal of time to resolve, and Project staff would have to advise anyone considering developing a

project of this nature to ensure that all these systems are not only in place but unlikely to be rearranged soon, before going ahead with the project.

Branding the Project Studio

The Studio is to be known as "Workspace", to emphasise its productive nature. The Studio Manager has run a branding project with our current Third Year students to develop an identity for the studio. As well as providing the students with a useful "real" branding project, it served as a very successful means of promoting the project with the cohort of students who would provide its critical first group of designers. In addition the branding project has provided a number of delightful images that are being used in the decoration of the Workspace Studio.

Pilot Project and further preparation

Project personnel intend to run a pilot project for the Studio designers before the end of 2009, in order to iron out any problems before the official launch to industry in January 2010. While it is not possible to comment on this in the present paper, it will be included in the Conference Presentation.

Reflections and Conclusion

This progress has taken place in the context of visits to England by project staff, and by Tony Hudson to Durban. These visits included a presentation at the Forum for access and Continuing Education (FACE) conference in Stoke on Trent in July, which allowed a great deal of networking with colleagues in similar areas, and where Project personnel presented a preliminary version of this paper. All this has been very effective in focusing the project. As a result, a number of our initial concerns have diminished: industry representatives, for example, have pointed out to us that the amount of competition offered by this Studio is unlikely to be large enough to cause ill-feeling. The area of competition remains one where the Project as a whole must tread carefully, though. Our estimates of potential work from client groups have changed towards internal and NGO groups. The organization of the Studio has changed, and the plans for it are already influencing the nature of the courses in whose context it will act. One factor that has become much clearer is the necessity to curriculate precisely for the WIL component, and to monitor this closely: many courses have run into difficulties by failing to do this. In addition, the potential financial scale of the project has grown, not least because the DVCD would like to involve the Photography Programme in its work in addition to Graphic Design.

Project personnel are now very optimistic that this Studio can be self-sustaining in the long term, beyond the duration of the EPA funding, and that in doing so it can offer both a significant learning experience for our students, and a highly beneficial service to its clients within the DUT and beyond. In return the department is also optimistic that its operation will benefit it financially in difficult times, as well as provide a focus for research. It will generate traditional academic outputs in the form of publications, and non-traditional outputs in the form of design artefacts and products, plus it can offer topics for those wishing to complete higher qualifications. It has already been an enormous learning curve for staff involved.

The potential consequences of a successful project of this nature are very significant. The DVCD Graphic Design Programme looks forward to reporting on its continuing success.

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Short Biography

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USING EDUCATIONAL RESEARCH RESULTS TO IMPROVE GRAPHICS FOR INSTRUCTIONAL MATERIAL

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Abstract

Graphic designers and illustrators intuitively believe that their graphic embellishments such as pictures, photographs and graphics will aid a learner when they use instructional material. The results of empirical studies however indicate that graphic embellishments have a limited effect and only contribute to learning under very specific conditions.

Scholars working in the fields of educational psychology have published extensively on variables that aid reading, recognition, recall, and comprehension. Their study fields included the use of supplementary, decorative, informative and explanative pictures, as well as using visual sequencing and animation. These empirical studies for example, indicate that pictures are distracting and should be avoided when the aim is to teach people how to read. Animated graphics have some value in a learning situation but can also place additional cognitive demands on a learner and might not facilitate learning.

Designers must develop knowledge of published research, consider the expected outcome of the learning material, and must know which type of graphic will most likely have the best cognitive effect given the learner and the text. Designers must pre-test their images in conjunction with the learning material in order to eliminate visual barriers and the possibility of inappropriate visual language that could cause miscommunication. Graphic designers can, by applying the results of published research, improve the inherent learning value of graphics when used with instructional material.

Key Words: *Instructional material, learning with pictures and graphics*

Introduction

Studies indicated that pictures can help learners to understand and recall prose and instructional text when the pictures are used in conjunction with the text (Levin and Lesgold 1978; Levie and Lentz 1982; Goldsmith 1984; Moore and Skinner 1985; Pettersson 1993; Mayer, Bove, Bryman, Mars and Tapangco 1996). Researchers, to the contrary have also reported that pictures can even have a negative effect when beginner readers learn how to read (Samuels 1970; Concannon 1975; Solman Singh and Kehoe 1992; Wu and Solman 1993; Solman and Wu 1995).

This paper will briefly report on when pictures do not facilitate the learning process, animated graphics and learning, and the importance of pre- and post-testing learning material that contain graphics.

When pictures do not facilitate the learning process

Researchers agree that pictures interfere with the process of learning how to read and that pictures with a decorative function do not assist the learning process. The first part of this section will discuss studies that found that pictures interfere in the process of learning how to read, while the second section will discuss the null facilitating effect that pictures with a decorative function have when they are combined with instructional text. Scholars frequently quote Samuels (1970) and Concannon (1975) who, in their review of published research, found seemingly little or no evidence that pictures will facilitate learning. The review of Samuels looked at studies that investigated the effect of pictures on subjects when they learn to read; the use of pictures to aid comprehension; and the influence of pictures on attitudes. A common element of the studies is that the text could be understood without the pictures, or where the goal of the lesson could be achieved even if the

pictures were removed. With reference to some of his own work and nine other studies, Samuels (1970:402) remarked that researchers appeared to agree that pictures interfere with readers' ability to acquire a "sight" vocabulary. The customary procedure for investigating the use of pictures in learning single words consists of comparing the learning effect of words combined with a picture, with the learning effect of words without a picture. The experimental design used by researchers is either a pre-test, post-test or a post-test-only design in different combinations, whilst control groups are not always used by the researchers. Solman *et al.* (1992) extended this standard research design with four variations of the test material. Their test material variations consisted of a large picture above a small word, a small picture below a large word, a small word without a picture, and a large word without a picture. They used sixteen children with a mean age of 5.6 years and excluded those that could name more than one correct word in a pre-test. A different set of words and word-picture flash cards were used in the pre-test. Each subject received the material in random order in learning and test trials until they named three words correctly in any of the four variations, in three successive trials. The proportion of correctly named words, inclusive of all the previous trials, was taken as the criterion of achievement. The children correctly named 19.5 percent of the two variations where a word was combined with a picture, and gave a 40 percent correct response for the two variations where a word was presented alone. Solman *et al.* (1992) duplicated this experiment with sixteen new subjects of the same age group, but enhanced the pictures by doubling the thickness of the pictures' lines, extended the viewing time for the picture-word combination to eight seconds and reduced the viewing time of the word-only cards to four seconds. Their results were similar to those of the first experiment in spite of the additional emphasis on the pictures in the second experiment. The subjects obtained a mean score of 16.8 percent for the picture-word cards and 43 percent for the word-only stimuli. In discussing their results, they (*Ibid.,* 1992:149) remarked: *"These results again demonstrate the deleterious effect of pictures when young children learn to name words, and they provide further support for the blocking explanation of this picture and word problem."* The reason for this interference effect of pictures in the learning-to-read process is attributed to the principle of least effort. A subject will select that item from a complex stimulus that will require the least amount of effort to produce a correct response. The picture will require less effort to provide a response than a word that they still have to learn, and the shift in attention from the picture to the word fails to materialise with some learners.

Decorative pictures

Decorative pictures are pictures that embellish text and which have an element of artistic expression to them. The functions of decorative pictures are a numeration function, namely to increase the sales of the printed material, and a motivational-attentional function, namely to attract attention and to motivate. Decorative pictures may include decorative borders and graphic embellishments. Woodward (1993:118), in a review of the instructional purpose of illustrations in textbooks, remarked that publishers tend to use illustrations as a marketing tool to attract attention, to create a positive effect and to change illustrations on the book covers to create the effect of a new and revised textbook. Illustrations are also used to serve social policies and for political purposes. Levie and Lentz (1982:198), in their extensive review on the effects of text illustrations, remarked that illustrations would not automatically help students to learn messages that are contained in the text. Suffice it to note that there is consensus in the literature that decorative pictures or text-irrelevant pictures do not facilitate recall and comprehension and do not assist subjects with inferential questions (Mayer 1993; Levin *et al*. 1987; Levie and Lentz 1982; Levin 1981). Decorative pictures do not repeat or explain information in the text and cannot help a reader to make inferences or understand the text. Decorative pictures are text-irrelevant and have no link to the instructional text.

Animated graphics and learning

Animation refers to the type of dynamic visual in which the creation of movement is applied to static object/s, particularly those that are manipulated on computer. The general assumption behind the use of animated visuals is that they have an essential instructional effectiveness in presenting unfamiliar or difficult subject matter. For instance, extracting information from animation of weather maps (Lowe 1999), to provide an explanation on how a particular process works, Dynamic visuals such as animations have different characteristics in terms of what they are able to represent (Lin, Chen and Dwyer 2006). Perhaps some of the obvious typical features of dynamic visuals are that they are able to provide users with two different elements, namely: images and movement (ChanLin 2000 and Rieber 2000) and their ability to show direct visualisation of changes that occur over time (Betrancourt

& Chassot 2008). ChanLin lists a number of areas for which dynamic visuals, such as animation can be used in a learning context: One of these areas is for comprehensibility and memorisation, another area; animation can be used in a variety of ways, such as in attention-gaining strategies or pointing arrows for emphasising a point. Dynamic displays can also be used to represent theoretical concepts, such as statistical concepts, as can be seen in a study by (Bodemer, Ploetzner, Feuerlein & Spada 2004) changes in population over time (as studied by Ainsworth & Van Labeke 2004) as well as computer algorithms (Narayanan & Hegarty 2002). Lewalter's (2003) experiment suggests that dynamic visuals are conducive for communication of spatial aspects and dynamic processes as it allows a complete visualization of spatial constellations and dynamic processes, while with pictures, static indicators such as shading or arrows must be used to represent this information. According to Tversky, Morrison and Betrancourt's (2002) analysis, there are two principles stating the specifications at which dynamic visuals, such as animation, may be successful in learning, even though these do not confirm the superiority of animation to the static images. These are the congruence principle (external visuals must be created/structured similarly with the internal), and the apprehension principle (graphics should be recognised and visualised correctly). A paper by Hegarty (2004), states that dynamic visuals can be used to depict processes that are visible in the actual world, such as a machine that is in motion. Dynamic visuals can also be used to present procedures that are hidden, but are spatially distributed, for instance changes in temperature in a weather map, (Lowe 2003; Hegarty 2004). Dynamic visuals can directly display changes in space over time, either incrementally or constantly (Ploetzner & Lowe 2004). Furthermore, if dynamic visuals are also made interactive, learners can be given some control over how these changes are presented to them (Chan & Black 2006).

According to Lowe (2001), in order for a dynamic visual such as animation to fulfil its potential as a tool for learning, its function must not only be to be attractive but must also consist of the cognitive function that can be used to develop other important parts of learning such as comprehension, recall and problem-solving. The following is a summary of some of the advantages of animated visuals:

- Animated visuals offer a better match between the subject matter and its representation because of its capacity to represent the dynamics explicitly.
- Clearer to the viewer, because the subject matter can be viewed from different angles. The depiction can hence advance from description to explanation. This is similar to what Tversky and Kessell (2006) as well as Rasch and Schnotz (2009) stated: that the one advantage that animated visuals seem to have over static visuals is that static visuals include only structural (visuo-spatial) information, while animated pictures entail structural as well as temporal information.
- Clearer, because, unlike static graphics, they do not require various additional symbols (such as arrows, dotted lines, etc.) to convey the dynamic aspects of the content indirectly. This means the display can be less cluttered and learners are not required to carry out the decoding processes necessary to interpret these symbols in order to understand the changes that the subject matter undergoes.

How animated visuals may not improve learning

One other interesting notion that is shared by the researchers is an appreciation of the fact that dynamic displays are not always easy to understand and may also impose additional cognitive demands that are not available to static visuals to the learner when creating a mental representation of the dynamic content. For example, when viewing a frame-by-frame animation or video, one views one frame at a time, and once the animation or video has advanced beyond a given frame, the previous frame is no longer available to the viewer (Hegarty 2004). Therefore this may be severe on the working memory, especially in cases when information presented earlier in the animation should be integrated with information that is presented later. In contrast, when viewing a static display, viewers can re-examine different parts of the display as much as they wish (Ainsworth and Van Labeke 2004). However, it can also be said that the ability to introduce each step independently in animations reduces the clutter of static illustrations, in which all of the steps are shown at once (Stith 2004).

Using pre- and post-testing to validate the effectiveness of visual communication material

Sims-Knight (1992), Yarber (1995), Pott, Toppich and Christiansen (1996), Hugo and Smit (1998) and FHI/AIDSCAP (2003) recommended that, in order to improve the effectiveness of any visual material, it must be pre- and post-tested. FHI/PATH (2002) explained that pre-testing precedes the finalisation

of communication material so that it can be revised based on the pilot audience's reactions and suggestions. Visual communication material can be pre-tested and revised several times to ensure that visually and graphically communicated messages will be comprehended and well received by targeted audiences. The essence of this process includes checking for the appropriateness of all the elements used – for example, whether the illustrations and drawings comprehensively resemble what they represent and also whether the text is simple enough for the intended audience to understand. It must also be ensured that all the graphic elements, such as colour, are used correctly in term of the cultural context and the visual literacy of the audience.

FHI/PATH (2002) suggested that for an effective pre-test, the following factors should be considered before the first, subsequent and final drafts are presented to the target audience: (i) Developing a profile of the target population amongst whom the pre-test will be conducted; (ii) Selecting times that suit the target population; (iii) Determining and scientifically selecting the size of the pre-test sample or an approximation thereof; (iv) Selecting the interviewer(s) who will be conducting the pre-test interviews; (v) Selecting the note-taker(s) who will be taking notes during the pre-test interviews; and (vi) Involving the artist/graphics team in the pre-test process.

Much of the negative public reaction to visual health promotion messages can be linked to inadequate pre-testing or insufficient reaction to comments emanating from the test sample (Piotrow, Kincaid, Rimon & Rinehart 1997). Enough time must be allocated for pre-testing, revising and retesting, until the material is satisfactory. In other words, reaction to all issues arising from the pilot testing can ensure the suitability and functionality of such material. Therefore, to successfully measure the effectiveness of any visual communication material for meaningful learning or understanding, such material must be tested for comprehension and, if possible, for retention. Post-testing, on the other hand, assesses the success or failure of the material.

Cultural sensitivity of visual communication material

FHI/PATH (2002) explained that culture affects how people communicate, comprehend, and react to health promotion campaigns. Hugo and Smit (1999) argued that culturally inappropriate messages could lose their credibility and cause more harm than good. Hugo (2002) explained that graphic design elements such as colour combination, typeface, images and their rendering should be clothed culturally. Hugo and Smit (1998) and De Lange (1999) also recommended in their studies that visually-based communication material be fashioned in a way that is relevant to the intended users' cultural contexts. Research has shown that locally relevant images and messages used in visual materials are found to be effective, because they are culture and religion compliant (FHI/PATH 2002). Involving a community in the planning process through to the presentation stage is likely to prevent the violation of norms and traditions particular to a specific community. Acknowledgement and respect of cultural differences are factors that can contribute to the success of the material. Some examples of attitudes and values that are interrelated with culture include the accepted roles of men and women, the value of traditional medicine versus western medicine, favourite and forbidden foods, manner of dress, and body language, particularly whether touching or proximity is permitted in specific situations (Hugo 2002). Hugo and Smit (1998) and Hugo (2002) made some suggestions for improving the appropriateness of visually-based health education messages to suit multicultural communities, namely:

- Allowing the participation of target audience representatives in the process of designing health messages;
- Properly investigating the socio-cultural consequences and difficulties of using specific symbols or media; and
- Adapting messages that mirror the multicultural audiences of different communities.

Conclusion

Wall posters that promote the learning of sight words contain text and pictures, are often found in 1st grader classrooms. These and other learning materials are richly decorated with graphics and pictures but they will not necessarily help a beginning reader learn how to read. Decorative embellishments in learning material do not contribute to the learning effect because they do not convey information and act as a distractor in the material. Despite the general assumption concerning the advantage of dynamic over static visualisation (ChanLin 2000; Rieber 2000), it can be seen that dynamic visuals with text can have essentially the same effect on students' learning as static visuals with text. When

looking closely at characteristics of both types of visuals, it seems as if there are some areas where dynamic visuals can be used (ChanLin 2000; Narayanan & Hegarty 2002; Ainsworth & Van Labeke 2004; Bodemer et al. 2004), and other areas where pictures and other static visuals are more appropriate (Lai 1998; Hibbing & Rankin-Erickson 2003; Mayer 2003; Carney & Levin 2002). Therefore, various types of external representations combined with text have varying functions and can help create a "mental model" (Mayer 2003), rather than simply receiving or absorbing knowledge (Mayer 1989; Suwa & Tversky 2002; Hibbing & Rankin-Erickson 2003). The review found that the subjects' prior knowledge (ChanLin 1998; Guan 2002), the content of the instructional material (Leung & Pilgrim 1995; Weiss et al. 2002; Lin, Chen & Dwyer 2006), and the testing method (Lowe 1999; ChanLin 2000;) are but some of the variables that can determine if an external representation can increase a subject's comprehension and if such comprehension can be accurately measured.

For any visual communication material to be more effective, the designers and producers of health promotion and educational messages must ensure that all the visual elements are appropriately utilized. Designers must apply the basic design principles, such as the right colour and typeface and the use of appropriate imagery in a manner that would minimise distractions and miscommunication and aid comprehension.

Visually based communication material must still be handled by a team of experts, based on the scientific information available on the problem, the social and cultural values of the audience, and the environment in which such material will be used. Effective visual communication can be a valuable component in the medical management of for example HIV/AIDS. It is the designer's responsibility to be certain that the message tells the intended story and that the information is delivered in a clear, easily understood "language" with no possibility of misinterpretation. Thus, designers must first develop total knowledge (research) of what they are talking about, whether in a publication or an illustration. They must then decide exactly what they want to say and how they want the viewer to understand what is being said. The material must be pre-tested before the message is exposed to the audience, thus eliminating potential visual barriers and the possibility of inappropriate visual language that could cause miscommunication.

Accessing research results from educational journals may provide designers with the information they need to improve the use of graphics when designing material with an instructional content. Educational researchers have published useful guidelines as to when and when not to use pictures in combination with instructional text and how one can improve on using dynamic and static images to improve the educational effect.

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MIRROR|MIRROR|ON THE WALL:
A STRUCTURED REFLECTION FRAMEWORK TO IMPLEMENT VISUAL RESEARCH AS PRACTISE-BASED ARTS RESEARCH DESIGN ILLUSTRATED WITHIN AN APPLIED PHOTOGRAPHIC EDUCATIONAL CONTEXT

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Abstract

Although various South African universities engage with art practice research methodologies, the research designs employed have not been clearly articulated or interrogated as of yet, leaving some work to be done towards answering Loxley and Prosser's (2005) call for a refinement of arts-based research methods. This paper presents a framework for structured reflection as research methodology within practice-based arts research - employing a synthetic research approach between the textual component and creative artefact production, with the creation of the artefact as integral component of the research design and research output, as opposed to analysis of the creative artefact. In this, an arts practice research design should be both explicit yet appropriate to the type of research questions encountered in practice and still to the outputs expected within an arts context (Biggs 2004:10). The role of the creative artefact is described as the research output, presenting not only new knowledge but also new forms of knowledge that tend to be transformative (Halford & Knowles 2005) and geared towards understanding rather than explication (Sullivan 2005), with a fundamental underpinning in phenomenological discourse as qualitative research strategy (Sokolowski 2000:85). Concepts such as phenomenological intentionality and the understanding of embodied experience and the lived world (Sobchack 1999) provides an ontological context for reflection to grapple with and validate the potentially tacit and subjective knowledge (Moustakas 1994:99) of the creative artefact. The textual component thus engages, through the proposed structured reflection framework, with the visual artefact component in four contexts, nominally defined as the conceptual context, the critical context, the methodological context and the process context. The textual component thereby functions as a framing device that has to be read in relation to the artefact component. In this application, a strategically adapted 4-stage model informed by Johns (2002) on structured reflection, Sullivan (2005) on arts practise research, Dewey and Kolb (in Neil 2004) on experiential learning models, is considered most appropriate, making use of the research journal (Newbury 2001) as core to guiding reflective practice. The proposed framework is illustrated in an applied photographic educational context, where again phenomenology functions as underpinning philosophy and learning is facilitated and guided by means of reflective practice. Educating through guided reflection for arts-practice research from an undergraduate level onward is proposed as a way forward to improving practice and expanding practise-based arts research, especially at the still ill-defined yet historically centred-on-practise, Universities of Technology, and in so doing contributing to the possibility of differentiating a unique identity in the South African Higher Educational arena and expanding its potential contribution to the nature and scope of knowledge creation.

Key Words: *practise-based arts research; reflective practice; guided reflection; phenomenology; research journal; photography*

The international paradigm shift in arts research practice towards the process of artefact production and the visual has recently been reflected in the South African higher education engagement therewith, as evidenced in the NRF *Practise-as-research Report (2009)* involving the University of Cape Town, Stellenbosch University, UKZN-PMB and Rhodes University, as well as the *On Making: Integrating Approaches to Practice-Led Research in Art and Design Colloquium (2009)* hosted by FADA of the University of Johannesburg. In this emerging context, the focus of this paper is to suggest a possible research framework for reflective practice that addresses some of the challenges faced by practice-based arts researchers in a rigorous manner, whilst at the same time acknowledging the artists specific way of knowing and engagement with phenomena. The proposed framework is developed by means of a hybrid research design based on a) model-building by means of a literature review on salient, yet critical, points on regarding the creative artefact (CA) as knowledge representation in a research milieu and b) reflection-on-teaching and reflection-on-experiential learning informed by a phenomenological perspective. The proposed framework is illustrated within a

third year applied photographic educational context, directed towards guiding reflection on 'artefact production' that allows structured deductive inferences and refinements to be made to the framework design. This approach allows the researchers to establish causal relationships and allow predictive claims under certain conditions to be made (Mouton 2001:177) regarding the functionality thereof in practise-based arts research (P_bAR).

The seminal paper by Frayling (1993), entitled *Research in Art and Design*, opened the debate into the manner in which the idea of arts-practise could be conceptualized as research (Durling, Friedman & Gutherson 2002:9). P_bAR, i.e. research in which a creative artefact (CA) is the *basis* of the contribution to knowledge, is defined by McNiff (2008:29 *in* Loxley & Prosser 2008:35) as "the systematic use of artistic process as a primary way of understanding and/or examining reality and/or experience by a researcher through the actual making of an artistic expression, an artefact". P_bAR is an adaptable form of inquiry that crafts 'in material, matter, media, text and time' (Sullivan 2005:4), extending the possibilities of knowledge generation in research practise. Since art practice has a rationale of its own, this perspective foregrounds "the epistemological value of what the artist-researcher actually does" (Pakes 2004:2), allocating to process the function of constructing transformative knowledge (Sullivan 2005:180) and to the CA the function of embodiment of knowledge.

P_bAR aspires to 'provoke, challenge, and illuminate' (Sullivan 2005:174) issues, rather than corroborate and strengthen argument, allowing a critical urgency to enter (Sullivan 2005:180). Key texts include Sullivan (2005), Loxley & Prosser (2008), Newbury's *Visual Studies Journal*; Biggs' *Working Papers in Art & Design* and Legget's *Creativity and Cognition Studios (CCS)* with most offering "a compelling argument that the creative and cultural inquiry undertaken by artists is a form of research" and exploring "themes, practices, and contexts of artistic inquiry and positions them within the discourse of research" that questions the sufficiency of building on limited notions of rationality and empiricism to guide inquiry (Sullivan 2005:50). This thrust towards P_bAR demands a critical re-evaluation of research frameworks and methodologies that dominate research discourse on the CA (*cf.* Loxley & Prosser (2008), Rose (2001); Mitchell (1994), Hall (1997), Sullivan (2005)) to allow for a more reflective research practise (Sullivan 2005:xvii).

Loxley and Prosser, in *Introducing Visual Methods* (2008), assert that 'learning how to effectively incorporate the [creative artefact] into contemporary research designs is a methodological priority', acknowledging that 'the role of arts-based research in general and visual arts research in particular makes a strong claim for inclusion in the qualitative research family but has some way to go before being accepted as a rigorous and valid approach. [Arts] researchers should give serious consideration to refine art-based research methods'. Emergent P_bAR methods and designs based on synthesis include arteology, psycho-biography, auto-ethnography, visual phenomenology, context-definition/experimentation models and visual research. Unfortunately, very few of the mentioned research designs offer any clear method/s of implementation.

P_bAR involves a 'significant shift away from the textual representation' (Dewsbury 2003 *in* Halford & Knowles 2005) towards research that is 'critical, contextual, kinaesthetic. [The] visual artefacts allow a means for sensing new forms of knowledge' (Halford & Knowles 2005) capturing 'the ineffable, the hard-to-put-into-words' (Weber 2008: 44-45 *in* Loxley & Prosser 2008:37), evoking multi-dimensional knowledge production that encompass 'individual, historical, cultural, and political content and contexts' (Sullivan 2005:173) which cannot be easily reduced to words.

The challenges and difficulties facing the P_bAR practitioner interested in doing research are three-fold. The first concerns fundamental issues of validity and credibility, as, to a large degree, the CA seems to be still regarded as representing 'intuitive, tacit and subjective knowledge' (Mathison 2007:1) and not suitable for representation of knowledge attained in a research study and as a 'communicative device for reporting findings' (Mitchell 2008). The second is concerned with the role of the CA in the final exegesis and the third relate to the procedures of the research design itself.

If I could say it with words…

Regarding the first challenge, i.e. as to the CA as knowledge representation, Sandra Mathison (2007:1) remarks that, "[the visual CA], in fact, is no more suspect than any other sort of data, such as numbers or text. [Visual CA], like any other data, can be used to question, to imagine, to critique, to

theorize, to mislead, to unite, to argue, to narrate, to explain, to teach, to represent, and, as such, their value as data and knowledge should not be ridiculed or avoided". Mathison (2007:1) further remarks that this use of '[the visual CA] in research and evaluation challenges a taken for granted assumption that legitimate knowledge of what is or what is not valued is best expressed in words, whether spoken or written'.

The criticality lies in epistemology. If knowledge is broadly considered as the individual contextualised internalisation of values, beliefs, information, skill, expert insight and experience (Davenport & Prusak 1998 *in* Durant-Law 2003), the Aristotelian classification of knowledge as theoretical, productive and practical (Smith 1999), offers an entry. Theoretical knowledge is knowledge in search of answers, essence or truth, whilst the productive is knowledge concerned with making, and the practical is concerned with judgment (Smith 1999). All three classifications consist of explicit knowledge, i.e. knowledge that is "articulated, recorded, formal, systematic" (Durant-Law 2003:3) and tacit knowledge, i.e. 'personal context-specific knowledge that is difficult to formalise, record or articulate' (Polanyi 1996, Tiwana 2002 *in* Durant-Law 2003:3). Both practical and productive knowledge involves the assessment of the character of practical reasoning, not associated with the positivist deductive or inductive modes of reasoning, on the argument that the rationality of a practice directly influences its epistemological legitimacy (Pakes 2004:1).

Aristotle's formulation of the practical syllogism acts as the underpinning for this alternative model of reasoning (Pakes 2004:1). The practical syllogism is 'a formalisation of the reasoning that makes sense of and justifies particular actions [and results]' (Pakes 2004:1), suggesting that when deciding how to act, the individual starts with intentions, balancing them against the specific set of circumstances, to produce an action and a result (Pakes 2004:1). Practical reasoning goes beyond the 'controlled concepts, thinking processes and forms of knowledge [to where the unique relationship between knowledge and the reasoning process] appear as either the device whereby the knowledge is produced, the manifestation of the knowledge's exercise or the logical expression after the fact of action' (Pakes 2004:1). Its logic is the logic of satisfaction in correspondence with "purposes and circumstances, not of truth and falsity" (Pakes 2004:1).

The CA, as repository of productive and practical knowledge, is of a tacit interpretivist nature, demonstrating an individuated comprehension of reality (Mathison 2007:1), representing, to the creative practitioner, 'questions and ideas' (Sullivan 2005:181) concerning knowledge contained and 'caught in experience and situations' (Sullivan 2005:189). Then, as to credibility of the visual CA as knowledge container, Mathison (2007) suggests the following considerations: (1) the quality of the research design "established procedurally" and, in the context of P_bAR, offers that "a unique attribute of an interpretivist research design is the inclusion of a personal account of how and why the study was done" (Mathison 2007:10), (2) an adequacy of attention to multiple perspectives/contexts, i.e. to the CA, the author thereof and/or audience (following Rose 2001), through a density of detail, oftentimes textual by nature, including personal interpretation, intention and information, as well as CA presentation, where 'sequenced, repetitive, variations of a set of themes, provide their own context [and] teach viewers what they need to know in order to arrive, by their own reasoning, at some conclusions about what they are looking at' (Becker 1998:14 *in* Mathision 2007:12). Tufte (*in* Mathison 2007:12) explains "the more intense the detail, the greater the clarity and understanding', and (3) credibility is dependent on the extent to which the study contributes to knowledge where the focus is not on 'the rhetoric of scientific proceduralism, but a rhetoric of believability, often a call to join the [researcher] on a journey of understanding and knowing" (Wagner 2004:150 *in* Mathision 2007:18).

On the black book and such…

The second challenge begs the question as to what exactly the role of the CA is in the research exegesis. Ross Gibson's view (*in* Candy 2006:9) is "the text is not an explanation of the artwork; rather, the text is an explicit, word-specific representation of processes that occur during the iterative art-making routine, processes of gradual, cyclical speculation, realisation or revelation leading to momentary, contingent degrees of understanding. To this extent, the text that one produces is a kind of narrative about the flux of perception-cognition-intuition. The text accounts for the iterative process that carries on until the artwork is complete and available for critique, appreciation, interpretation, description, evaluation". Similarly, Mitchell (2008:374) comments that 'at the heart of visual work is its facilitation of reflexivity in the research process. This point is a critical in understanding arts-based research".

Thus, the visual research exegesis contains a textual and artefact component; the key idea, as Scrivener (2000:10) suggests, is that an arts-practise report be structured around reflection to a format that could include 'identification of issues, concerns and interests to be worked within the project' (Scrivener 2000:10), a review of 'theory, knowledge and information relevant to identified issues, concerns and interests' (Scrivener 2000:10), reflection on process production and a summative reflection that 're-contextualises/re-frames issues, concerns and interests in response to material produced' (Scrivener 2000:10).

The exegesis becomes a framing device for understanding the project and its various contexts; an idea re-iterated by Baxter et al. (2009:9-10) that, in order to frame a project as research, the researcher would have to provide:

- a statement of intent outlining the problem or question to be addressed;
- a contextualisation of the enquiry in respect of the location or environment of the study; within the discipline and a body of theory; and in relation to the researcher's own work previous to the study;
- an outline of the method/process followed including ethical considerations where applicable.

Thus, the researcher would have to provide a self-reflection on the project'.

The exegesis, by means of a reflexive textual framing, orientates the project in relation to what it set out to explore, the success of its realisation as well as the knowledge obtained about individuated practise in the process of conducting the project.

So, how do we do it…

This concept of reflection in/on practise is not new, and brings us to the third aspect, the problematic surrounding the research design to be employed. As mentioned, very little in terms of guidelines exist for the design of a visual research study (Sullivan 2005:92). But, we are not completely in the dark.
Within the social sciences, a number of qualitative research strategies present themselves that attempt to encapsulate life as it is lived and experienced by the individual (Boeree 1998:2). Such an interpretivist attitude manifests itself through an enthusiastic introspection, strengthened by an 'ontological idealism and epistemological relativism' (Loxley & Prosser 2007:7), underpinned in phenomenology as ontology.

Phenomenology argues that there is only one source of certainty: the embodied experience (Lauer *in* Makaryk 1993:26, Reynolds 2005:5). It focuses on the description of reality as it appears to the individual, i.e. individual interpretation is the basic structure of experience (Moustakas 1994:10). Merleau-Ponty (1962) proposed that interpretation need not necessarily be rational, but is influenced by intentionality. Then, phenomenological intentionality refers to how we are conscious of phenomena (Moustakas 1994:68), which Sokolowski (2000:85) explains through perception, remembering, imagining or anticipating.

Perception describes ever-changing presences and absences through which we come to some understanding of the aspects of identity and consciousness (Sokolowski 2000:17); remembering is the internal re-enactment of previous perceptions in the present; imagining is the displacement of the self into 'an imaginary world, but the real world around me remains as the believed-in, default context within which I imagine, from which I am displaced' (Sokolowski 2000:72); anticipating being the imaginative projection of the self into future situations that have not been lived through (Sokolowski 2000:73).

These intentionalities are classified as the internal domains of experience (Sokolowski 2000:85) whereas intention to external reality is made through description (description of direct perception), signification (e.g. words on a page that make us conscious of that which are absent), indication (stones next to a path is taken as a trail marker) and picturing (a piece of wood with marks on is read as a picture). This ontology of phenomenology offers a conceptual construct by means of which P_bAR could be framed through structured reflection, facilitating the development of a research design 'to identify what should be attended to in the process [of visual research as method], its form and documentation' (Schrivener 2000:9).

Reflection is a meta-cognitive strategy of active exploration that facilitates the understanding of 'experiences, action and decisions taken' (Schneider 2006). Dewey (1933) (*in* Schneider 2006), explains reflection as 'as active, persistent and careful consideration of any belief or supposed form of knowledge in the light of grounds that support it and the further conclusions to which it tends'. A practitioner engages with reflection when 'the [unexpected] arises and an attempt is made to understand and resolve it'. Then, reflection is the functional process of phenomenological reduction whereby the subjective experience is interrogated 'leaving intact all of its attributes, [yet] throwing into relief both consciousnesses itself and the object it apprehends' (Makaryk 1993:140), divided into either reflection-in-action or reflection-on-action, as argued by Schön (1983).

Reflection-in-action is described as 'that process that allows us to reshape what we are working on, *while* we are working on it. It is an on-going experimentation that helps us find a viable solution' (Schuh 2003) that allows the practitioner to develop a specialised 'repertoire of expectations, skills, techniques and solutions' (Schön 1983:60) in resolving concerns-of-practise as they arise, which, more often than not, goes unrecorded. In contrast, reflection-on-action is driven by our need to learn from experience in order to extend the repertoire of knowledge, described as 'thinking back on what we have done in order to discover how our knowing-in-action may have contributed to an unexpected outcome' (Schön 1983:26).

Scrivener (2000:8) comments that, 'there is, then, an argument for suggesting that the practitioner could benefit if reflection was recorded and reported more systematically' concluding that it is in the methodical recording of praxis that the researcher is able to describe the individuated phenomenological intentionality of the process of practise that frames the artefact and through phenomenological reduction in reflection that the knowledge is made more accessible, 'both to the researcher and those to whom the project is communicated' (Scrivener 2000:8).

Since the research design in P_bAR is dynamic, exploratory and revelatory, reflexive practices are used to shed new light on what is known and to consider the possibility of what is to follow (Sullivan 2005,:191-192), as the Visual Research Centre of the University of Dundee (2009) explains, 'the framework of the "practice-based research in art and design" is still very open and integrative. It allows the artist researcher to develop his/her own methodology within a research process which is highly individual and dependent on the specific subject matter'.

Sullivan (2008) argues that 'this is the only way that we can capitalize on the extraordinary capacity of art and cultural production to come up with new views and visions and theories and practices of significance'.

Yet, though acknowledging the particularised research design needs of each study, such an approach does not assist in commencing research, as many aspiring artist-researchers flounder about for a significant period of time, reading all-and-sunder in order to find a way, a means, a strategy of engagement. It is with this mind that a structured reflection framework for visual research in P_bAR was designed that could be followed in a logical and direct way without being prescriptive or, in any fashion, all encompassing. It serves as an outline towards exploration of the various contexts that inform and are fundamentally embedded in CA production, as illustrated in the simulated core of the visualisation diagram, where, if any single context is removed, a different entity will result, whilst offering a point-of-entry into the research process itself.

Specifically, these contexts could be described as:

- Critical Context
  The critical context engages with the nature of the medium employed, its epistemological and ontological underpinnings, critical theories and historical tradition in order to situate the production of the CA in a broader socio-cultural and theoretical debate.
- Conceptual Context
  The conceptual context explores the relevant background to the idea as construct and fundamental underpinning informing the CA.
- Process Context
  The procedural context focuses on the dimension of production, reflecting on choices, both aesthetic and materials-based, explored in the production of the artefact. It is in this phase that critical reflection on the evolution of the artefact/s are discussed, illustrated, including any discoveries made, either from an experimental or aesthetic point-of-view.

- Methodological Context
  The methodological context immerses the researcher in the underlying ontology of the operational research rationale. When these contexts are integrated into a reflection model, as summarised by Kuit & Reay (2001:131), a framework emerges.

In this application, an adapted 4-stage model is considered most appropriate, which includes (1) the action of CA creation undertaken as core moment in the research process, (2) the description of the action to understand the individual embodied experience thereof, (3) a reflection that examines the practitioner's motivations and choices in relation to the process of CA production and (4) an evaluation and consideration of alternative strategies and other possible options that again feeds into the act of CA creation, as illustrated (fig. 1).

The framework arranges the identified four stages for structured reflection into three phases, recorded in a research journal (*cf.* Newbury 2001), with:

- phase one offers an initial reflection that positions the researcher's intent at the start of the project,
- phase two being continuous cyclical reflection on the results of process, i.e. how choices made during production corroborated or contradicted the initial visualisation and,
- phase three as the summative reflection on learning through engagement with reflective practice, that will, in Johns' (2002, p 10) words, prompt 'the practitioner to deconstruct her experiences in ways that hopefully will lead to understanding and insights that can be applied to new experiences' and, most importantly, lead to PbAR that stands up to rigorous peer reviewing processes.

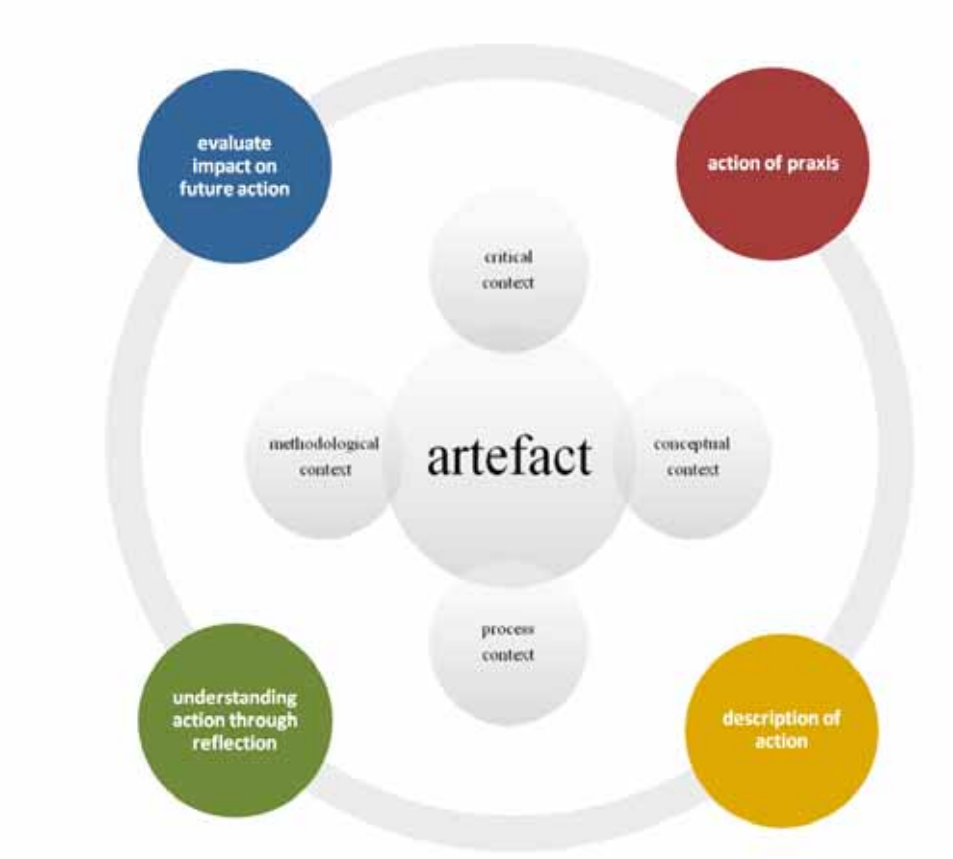


Figure 1 :The model for structured reflection in practise-based arts research

The proposed framework…

Phase 1: Initial Reflection
In your research journal,

- Describe/Explain my creative approach in relation to technique, aesthetic, genre/subject. What does my work look like at present? Why does it look the way it does? What do I want my work to look like? How does this relate to my values and norms? Is there a conflict between the appearance of the artefact and my mental construct thereof? Add visual illustrations if, and where, appropriate of both my own work and examples of work that have appealed to me. Look meticulously at the visual illustrations. Describe each in relation to both the above and the relevant following aspects.

Aspects to consider might include, as examples (not exhaustive):

- When considering my aesthetic approach, what is my relationship to the following? Light, Colour, Line, Shape, Rhythm, Pattern, Contrast, Texture, Volume, Perspective, POV, AOV, Balance, Format, Motion, Narrative, Horizon. How attentive am I to an aspect? Is it important in my approach? What does it contribute to my aesthetic? What does it contribute to the meaning in my work? Is there a conflict between my interpretation/use thereof and the conventional interpretation thereof?
- When considering my *technical approach* (photography as illustrative example), what is my relationship to the following? Tripod/Handheld, Camera Format, Frame Ratio, Frame Orientation, Lens Focal-length, Presentation, Focus, Exposure, Image Quality (Granularity/Tone Reproduction/ Definition/Colour Reproduction), Photographic Processes & Techniques. How attentive am I to the aspect? Is it important in my approach? What does it contribute to my process? What does it mean to me to make use of a specific aspect? Is it duly considered, i.e. intentional? If so, why? If not, why not?
- Describe the relationship between my approach and my understanding of truth. Is it objective or subjective? Essentialist or Fragmented? Explain. Is there a conflict between the idea of the artefact and my relation to truth? Explain.
- How is the tradition of the genre in the discipline I am working in influencing my aesthetic visualisation of the project/artefact/s? What limitation does this impose on my generation of concepts/ideas? On my technique/process? On the aesthetic of the artefact/s? What opportunities for exploration emerge? Explain. How are the aesthetic choices I made different from or similar to the visual tradition of the genre? Add visual illustrations if, and where, appropriate of my own work and others that have appeal to me as an individual. Look meticulously at the visual illustrations. Describe each in relation to the above
- Describe my relationship to the phenomena (subject). How am I conscious of the subject? How do I relate my experience of the subject to my internal expectation? Is it through sensory perception? Is it by means of memory? Is it through imagination?
- What is my underlying idea/motive for the project at hand? Describe it. Referring to literature from as many fields of enquiry as possible/relevant on the concept/idea, provide information thereof as background. Following, what specific aspect thereof do I wish to be the focus of my enquiry at this juncture? How is my conceptual underpinning of the project influencing the visualisation thereof? How does it affect my approach in relation to technique and aesthetic?
- Illustrate by example, the work of other practitioners on the concept/idea. How does their work affect my approach? What limitations do the above impose on my visualisation of the project/artefact/s? How do I visualise the difference between their work and my own? What opportunities for exploration/originality emerge? Explain.
- What do I understand to be the relationships between the artefact to be created and the reality/concept/idea to be depicted? Is it to describe or record or document? Is it to aestheticise? Is it symbolic and/or metaphorical? What limitations do these impose on my visualisation of the project/artefact/s? What opportunities for exploration emerge? Explain.
- Explain why a P_bAR is considered suitable to the investigation of my concept/idea. What are the ontological and epistemological underpinnings of the research design/approach/method selected? Are these imminently suitable to P_bAR? If so, explain why? Explain the process of the research to be conducted? Are there aspects of the study that can only be communicated via the artefact? Explain. What do I consider to be the role of the reflection in my research? How will I conduct this? How will I record this? What will my final submission for qualification look like?
- Reflect on how my personal preferences regarding aesthetics | technique | genre/tradition | concept/idea | research design are influencing the visualisation of the project? Is this relevant to the enquiry at hand? Explain.

Phase 2: Cyclic Reflection

Describe my

- initial intended process. Which aesthetic criteria will convey the intended idea to my expectation? Is there a limitation on aesthetic approach due to technical means available to me? Is there a limitation on aesthetic approach due to financial means available to me? Which technique criteria will convey the intended idea to my expectation? Is there a limitation on technical means due to financial considerations?
- Initiate cycle of practise production based on the above.
- Reflect on the surprises I have encountered while working with the chosen aesthetic/technical/subject/genre means/approach? What opportunities for exploration emerge? Explain. Is this relevant to the enquiry at hand? Explain. How have these surprises reframed my practice?
- Initiate cycle of practise production based on the above.

Repeat phase 2 until completion of project

Phase 3: Summative Reflection
How has this project enabled me to:

- Confront and clarify the beliefs and values that inform my practice? Understand my work in relation to that of others? Access, critique and assimilate relevant theory within personal knowing in ways that enable me to make sense of my experience and inform my practice? Understand my own individuated subjective perspective on the concept or idea?
- Understand my practise in terms of its ontological underpinnings and epistemological value?
- Add value to my discipline? Become a visual researcher?
- Focus on, understand and explore new ways to solve particular problems in my practice? Develop an understanding of my authorship and personal style?
- Make connections between the present experience and past experiences whilst anticipating how I might respond in future situations in relation to my personal approach in terms of my interaction with Technique/Equipment | Aesthetics | Subject | other? Explain.
- Improve my practise?

To illustrate…

Recursively, within the higher educational sector, the introduction of P_bAR options must filter down to undergraduate level. As illustrated, traditional notions of 'knowledge' and 'research' are challenged repeatedly with P_bAR. Reilly (2002:4) explains, "a traditional area of epistemological enquiry has collapsed; taking with it some of that which remains of the quest for certainty in 'knowledge', and this has implications for the arts". As such, debates on the nature of knowledge should not only be included in the curriculum but should also inform didactic strategies.

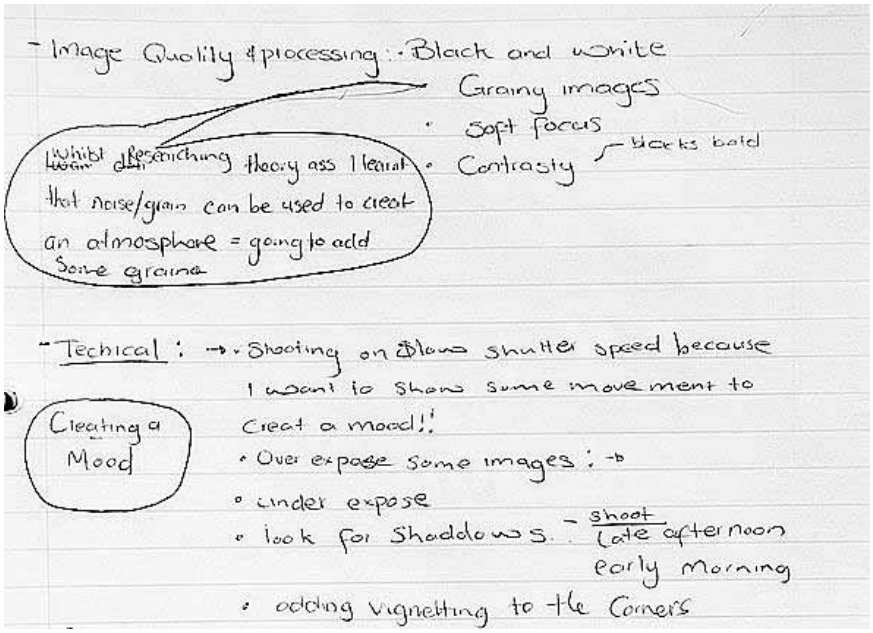
Since phenomenology not only informs our understanding of consciousness and experience, but also implies a way of being in the world with an attitude of enquiry to assist understanding of experienced phenomena (Hultgren 1995), aspects of which are almost automatically included in studio teaching practice, our experience can be expanded by the sharing thereof when a more structured didactic approach is taken to prepare students for P_bAR. Didactic strategies informed by phenomenological thinking imply that an environment conducive to learning rather than teaching must be created, that allows for new, non-traditional types of knowledge to be acquired and emerge.

Kovacs' statement that "[t]he art of teaching inspired by the phenomenological attitude is not a power of imposition allowing the illusion of autonomy, but an attitude of unfolding the actualizing forces of the human person" (1979 abstract) is echoed by Hultgren (1995) with a focus in teaching on 'letting learn'. Hultgren (1995:381) goes on to stress the importance of facilitating the realisation of authorship through development of the students' own voice. In this, guided reflection is a commonly employed strategy.

As useful, constructive reflection is not automatic, natural or easy for most students, they need to be assisted both in developing the general habit of reflecting and in a structure for reflection (Johns 2002: 8) which assists them in achieving the goals set out for them in the programme they are studying, or by themselves for a specific project. From a didactic point of view, it is this guided structured reflection that facilitates learning and is of primary importance in a UoT context – the improvement of practice.

Within a context of arts practice education, we propose that guided reflection should have the following outcomes[1]:

1. Guided structured reflection with specified outcomes.
   Boud & Walker (2002) list 'reflection without learning' as one of several common problems that can arise in the facilitation of reflective practice. They state that "without a focus on conceptual frameworks, learning outcomes and implications, reflection can become self-referential, inward looking and uncritical" (Boud & Walker 2002).
2. Providing opportunities for discussion of structured reflection activities.
   The journal entry (fig. 2a) is discussed with the learner, prompting her to reflect on the motivations for her technical choices (fig. 2b). Johns (2002:7) stresses that guidance of reflection could be facilitated, both through the provision of a suitable structure and individual/group consultation sessions, where the reflection is reviewed with the student/researcher in order to reveal possible areas that are neglected or overemphasised, enabling the theories-in-use to be grounded in relation to the theories espoused (Schön & Argyris 1974 *in* Smith 2001:20). Figure 3 is an example of a journal entry that records the results of a discussion session, where the student had an idea about her abilities and the images that were created, which was questioned and led to her reflecting on possible reasons for her results.
3. Encouraging multimodal reflection.
   The phenomenological way of being *in* the world is an essential attribute that must be developed in aspiring researchers. It is essential to acknowledge and reward reflection through other media than the written word in a practise-based program. Figure 4 shows the use of multimodal reflection were the visual of a student's father's dompass communicates as much as the quote recorded in her journal.
4. Developing reflection on learning.
   Through reflection on learning students construct their own knowledge and achieve deep learning (Biggs & Tang 2007:50) and at the same time provide evidence of this learning. Working and being educated in the arts is bound to change the individual's concept and understanding of the self as well as the society they live in. Figure 5 illustrates how encouraging a habit of reflection on practice can prompt development of both practice and the individual.
5. Development and improving of specific skills through reflection as set out in initial outcomes for specific projects.
   It is recommended that the framework for structured reflection be modified according to intended outcomes. This serves the purpose of focusing reflection on the educational outcomes required.



[1] The illustrations provided are examples of journal entries made by third year students during a group project interrogating the individuated meaning of Sharpeville, both as historical and spatial construct in South Africa, during 2009. These illustrations are far from ideal examples of reflection. Rather, they are ideal illustrations for the motivation for and nature of guidance of reflection.

Figure 2(a): Example of a journal entry that utilises aspects of the proposed framework

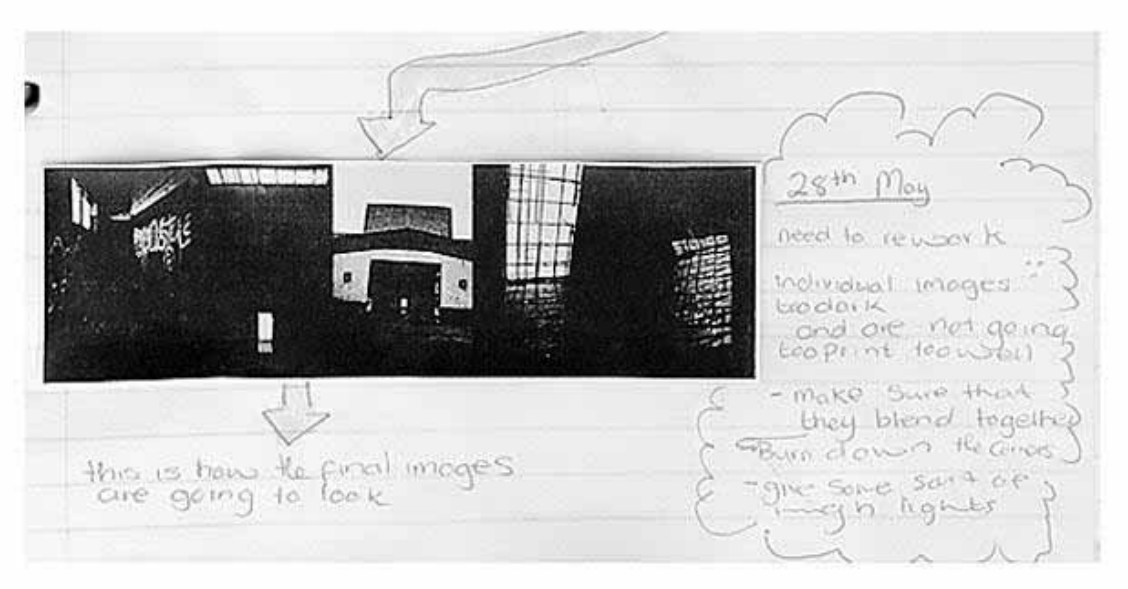


Figure 2(b): Journal entry on improvements to be made on an image (educator guided)

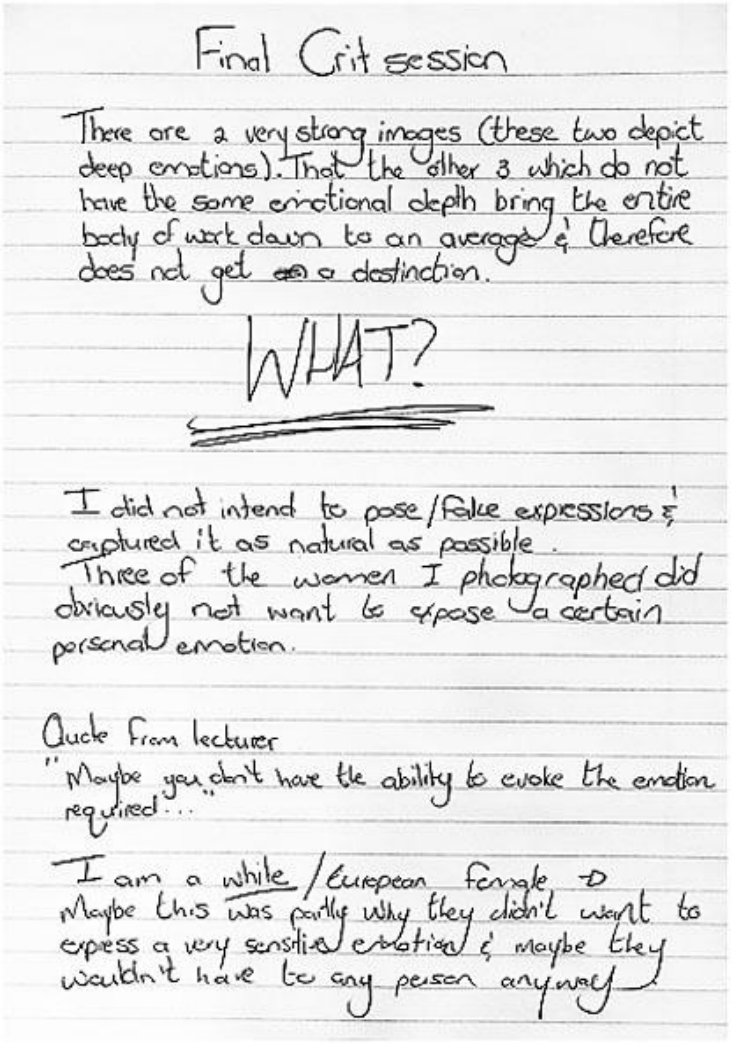


Figure 3: Journal entry illustrating reflection stimulated by a discussion session.

This is a copy of my dads "pass" dompass
My dad has told me many stories about the pass laws and how it has affected him.

"I was arrested because I did not have my pass on me. I to spent a few hours in a cell and ~~had~~ your mom had to bribe the Police to let me go"

"you have no idea how lucky you are"

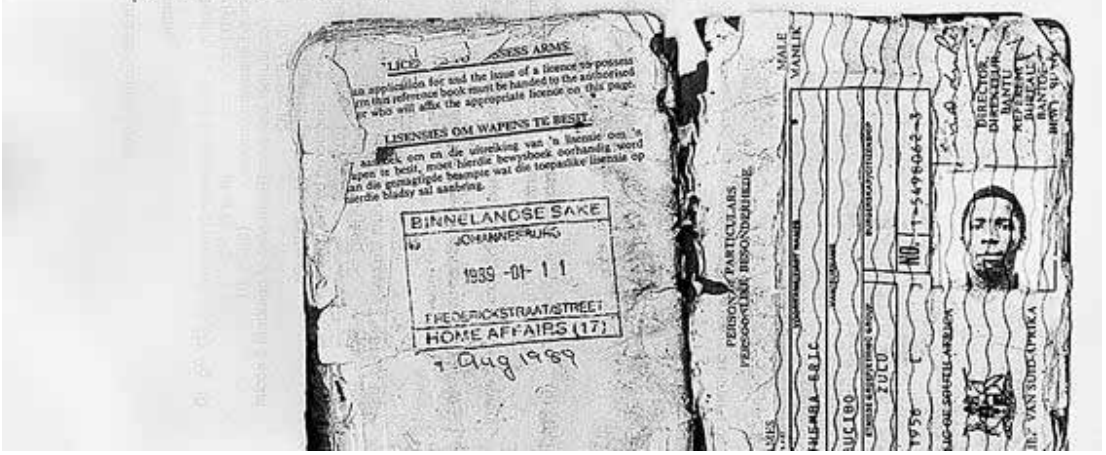
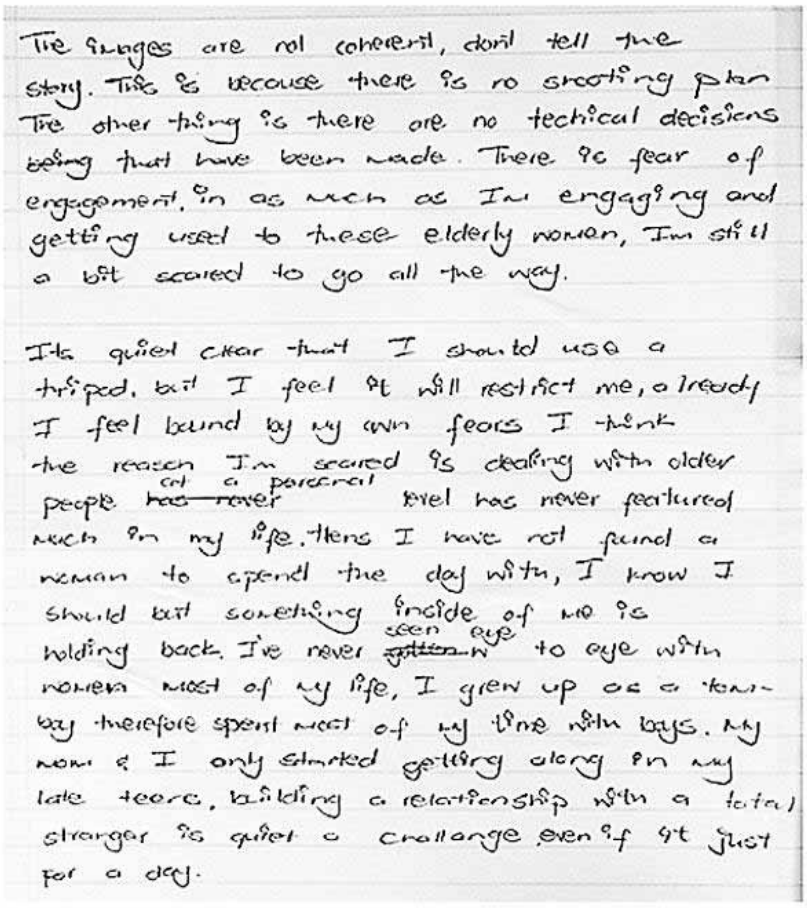


Figure 4: Multimodal journal entry



The images are not coherent, don't tell the story. This is because there is no shooting plan The other thing is there are no technical decisions being that have been made. There is fear of engagement, in as much as I'm engaging and getting used to these elderly women, I'm still a bit scared to go all the way.

It's quite clear that I should use a tripod, but I feel it will restrict me, already I feel bound by my own fears I think the reason I'm scared is dealing with older people ~~has never~~ on a personal level has never featured much in my life. Hence I have not found a woman to spend the day with, I know I should but something inside of me is holding back. I've never ~~gotten~~ seen eye to eye with women most of my life, I grew up as a tom-boy therefore spent most of my time with boys. My mom & I only started getting along in my late teens, building a relationship with a total stranger is quite a challenge even if it just for a day.

Figure 5: Journal entry illustrating the transformative possibilities of reflection

To conclude…

It is evident that the arts have a significant contribution to make in the quest for knowledge and understanding of both reality and our experience thereof, but doesn't necessarily follow conventional routes to achieve this aim (Sullivan 2005:28). Practise-based arts research (P_bAR) presents new prospects for researchers, however, if the significance of the creative artefact (CA) as research contribution to human knowledge is to be fully understood, there is a need for a broader conception of inquiry into the nature of knowledge and its representation, one that incorporates the Aristotelian productive (skill) and practical (creative) as modalities (Smith 1999, Sullivan 2005:34). These creative responses are not confined to any particular research method and rely on intuitive, inventive, open research designs that support the creative process instead of confining it (Sullivan 2005:56). Since CA production includes both premeditated aspects and on-the-spot decision-making, structured reflection within P_bAR is proposed as a framing device to the creative artefact in the final exegesis, assisting the practitioner and audience in both understanding and learning. However, due to the open-ended nature of such a process, many aspiring researchers find it difficult to begin the engagement with practise in a systematic fashion, to which a framework is proposed, the usefulness of which was preliminarily explored in an undergraduate educational setting. Specifically, five aspects were identified as outcomes for guided structured reflection based on the framework as informed by the ontological and epistemological underpinnings of P_bAR as discussed in this paper. It is recognised that familiarisation with the method and techniques of structured reflection and the critical underpinnings of P_bAR at undergraduate level are essential to building research capacity. Specific case-studies would assist in refining such an approach to research through practise, the improvement of learning through practise and establishing visual knowledge representation in research. Then, the opportunity exists, especially for Universities of Technology, which have a historical focus on applied education and research, to establish and differentiate their knowledge contribution to the higher educational sector and it is recommended that the framework be more fully explored in both the undergraduate and postgraduate arenas.

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Short Biography

Jakob Doman's own experience is grounded in a combination of experience in the commercial advertising and fine art arenas for which he has been honoured with D & AD and Clio-Awards and shortlisted for the Daimler-Chrysler Prize. As a researcher, he focuses his interests on the diverse fields of aesthetics, digital image signal processing and practise-based arts research methodologies. By creating a synergy from these seemingly disparate fields, he employs a multi-faceted and holistic educational approach that hopefully offers intellectual stimulation and creative awareness.

Anneke Laurie holds an MTech degree (*cum laude)* in photography from the Vaal University of Technology where she is currently a lecturer in photography and a member of the Bodutu Art Gallery curatorial committee. As a photography lecturer she believes that photographers are more often found than made. Ms Laurie believes that teaching is as much a journey of discovery together with one's students as it is imparting knowledge and skills. Her research is focussed on visual communication and visual literacy which I integrate with my photographic and teaching practice. She has exhibited fine art and documentary photography nationally in both group and solo exhibitions.

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MAKING SPACE FOR IDENTITY, DIVERSITY AND VOICE IN A TRANSCULTURAL VISUAL ARTS COMMUNITY OF PRACTICE

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Abstract

There is national and institutional pressure to transform education, to revisit curriculums and approaches to teaching and learning and to address issues around dominant worldviews, inclusiveness and diversity. Visual arts lecturer practitioners, like other academics, are being challenged to respond.

We know that the students entering our programmes, in all their growing diversity, provide new challenges, bringing with them as they do different and often complex social, cultural and familial identities, some of which they leave, wittingly or unwittingly, willingly or unwillingly, at the door, as they look to conform to the expectations of the disciplinary communities.

I maintain that the time is ripe for the teaching and learning approaches used to bring students into the visual arts disciplines/discourses to be appraised and problematized, for lecturer practitioners to reflect on their practices and for theories-in-practice to be set down on paper. To this end I reflect on one entrance level collective teaching practice, to see where the approaches to teaching and learning meet the needs of our diverse student body, and where adaptation and change is called for.

I conclude that lecturer practitioners need to move beyond the confines of their disciplinary knowledge, establish transdiciplinary teaching partnerships, and acquire the literacies of diversity and transformative educational theory, as they face the challenges involved in making connections with diverse groups of students, with different cultural frames of reference (Adams, Bell and Griffin 2007), (Steyn 2007).

Key Words: *Transculturality, diversity, disciplinary discourses, voice, identities, literacies.*

Introduction

The call has gone out from government for educational transformation. At institutional level there are laudable activities: units have been established, policies are emerging, and colloquiums are held. Academics are required to play an active role in transforming educational practices within their disciplines, but in my experience there is a dearth of explicitness as to what is actually expected.

My reading is that two things are entailed: firstly, that academic curricula and approaches to teaching and learning should be interrogated, in order to establish the relevance and appropriateness of these, in relation to a changing dispensation, where the traditional deference to western models of thinking and to what Freire (1972:71) (1998:32) refers to as banking methodologies of teaching are being challenged. Secondly, that we should set out to critically examine our discourse communities of practice, in order to establish how these are adapting to meet the needs of our diversifying body of students.

Depending on one's point of view there are potentially polarizing assumptions that might be brought to bear, affecting the reception of these readings: one is that academics, steeped in their disciplinary discourses, and comfortable in their acceptance of the validity of tried and tested methodologies, in the promotion of their own worldviews, will be unwilling to look critically at their own teaching practice. The second is that ardent proponents of transformative educational theory might throw the baby out with the bathwater, with good-practice 'old-school' teaching methodologies being sacrificed on the altar of political expediency.

I suggest that lecturer-practitioners in the visual arts disciplines need to reflect critically on their own teaching practice; scaffolding it to pedagogical and theoretical frameworks. They need to find multiple mirrors in which to survey themselves; to engage in an inspection of their 'own' discourse terrain; to reflect on their own preconceptions; to view themselves through their students diverse eyes, to consider how much space they make for these students to critically interrogate issues around identity, diversity and voice, and to look (inside and outside their disciplines) for ways of 'seeing' things differently.

To this end the first section of this paper comprises a phenomenological reflection on the collaborative teaching and learning practices in the Art and Design Introductory Studies Programme at the Nelson Mandela Metropolitan University in Port Elizabeth. The narrative is based on my own lived experience, and it represents the first stage of a larger research project. This exercise has allowed me to interrogate my own assumptions about the relevance and effectiveness of our practice, and to map our home grown theories-of-practice to the larger world of texts on teaching and learning, as a first step towards the end purpose of seeing where our approaches meet the needs of our diverse student body, and where adaptation and change is called for.

The paper then briefly examines possible ways that lecturer-practitioners can address issues of concern, as they face the challenges involved in making connections with diverse groups of students, with different cultural frames of reference (Adams, Bell & Griffin 2007), I suggest that there is a need for practitioners to internalize a range of 'diversity' literacies (Steyn 2007:1-13). I highlight the potential of transdiciplinary teaching partnerships, and promote the idea of developing a better theoretical understanding of the fluid transcultural communities of practice that have begun to operate within the disciplines, arguing that these already serve a transformative function that aligns with institutional expectations, in addition to serving as a means of perpetuating the positive heritage of dialectical antagonism, generational rejection and change from within, that has long characterized the visual arts academy. (Appignanesi & Garratt 1995:5)

A reflection on who we teach

We present the only generic first year art and design programme in South Africa, along with its offshoot, a two year augmented programme. At like institutions incoming students enter directly into the disciplinary streams from day one (Breytenbach & Johnston: 2008). In our case they have an introductory year in which to establish, through practice and experience, where their talents lie. Only after successfully completing our programme are students considered for places in the second year of the disciplines, and only then do they have to commit to a final study direction.

I have drawn from a range of telling 2008 statistics that show the profile of our incoming students, and that serve to illustrate why that broad introduction to the visual arts is so necessary. The vast majority comes from our province, the Eastern Province, which has an uneven educational terrain, with class sizes, access to resources, and levels of support differing widely between rural, small town and metropolitan schools. The end result is an aspirational but potentially academically vulnerable cohort seeking entrance to our programmes. Historically, most of our intake have experienced what Freire (1972:71) (1998:32) refers to as a 'banking' education at school, receiving, filing, retrieving and regurgitating stored deposits of information, bestowed on them by the teacher, in a passive classroom environment. OBE is intended to change this scenario, but we have yet to reap the fruits of this approach.

In 2008, 53 percent of Introductory and 89 percent of Augmented students had no pre-entry art training. To date there is a lack of visual arts training in the FET band in the Eastern Province, across the whole spectrum of schooling, but most notably in rural, semi-rural and historically marginalized communities. This means that the majority of students who aspire to careers in the visual arts, although they might produce portfolio evidence that indicates a potential to succeed, apply to the programme with no prior art training, and with very little real understanding of the distinctions between the different visual arts disciplines.

Those with art at school should be at an advantage, with research (Jensen 2001:88), showing links between artistic activities at school and cognitive, emotional and creative development, but with so few schools offering art, it would be unfair to make prior art training a pre-requisite. Instead we run a careful portfolio and interview selection process, in order to ascertain the degree of visual, design and

textual literacy that aspirant students bring with them. Historically the more advantaged students in terms of these literacies have been those from the former Model-C schools, where, whether or not they had the benefit of school art, learners experience a fairly privileged and visually enriched learning environment.

At present, we draw an increasingly wide range of students, in terms of demography and cultural background, with a growing number of applicants from what might be termed visually 'un-rich' and under resourced school and home environments. As socio-economic stratification remains inextricably linked to race in our province, the most vulnerable group, in terms of literacy deficit, has a predominance of black students.

On the surface, the students who arrive for interviews, apart from variations in their demographic classification, appear to be a homogonous group, in terms of dress codes, electronic accessories and aspirations. To generalize, what is common to the larger number of our applicants is that they have an understanding of the visual arts, of artists, designers and photographers, that is largely garnered from the popular media, from television, video and the internet. Entrance essays reveal that the future achievements and recognition they aspire to are linked in the eyes of many to a craving for wealth and fame, confirming Beardman's (1982:33) statement that 'the media-generated image of fame or star status, more than any stance on art, is at the root of many students' desire for identity'.

So it is easy to frame each new group of students in terms of a deficit model (Jacobs 2007:13) highlighting what it lacks in prior art training, focusing on the anticipated academic performance gap, or our concern with their preoccupation with achieving wealth and fame.

The challenge has always been, whilst remaining realistic about the academic vulnerability of our incoming students, to look to developing effective teaching and learning strategies that bring them into the discipline.

The new challenge is to ensure that as students enter the discipline in all their growing diversity, they do not end up leaving their different and often complex social, cultural and familial identities at the door, as they look to conform to the expectations of the disciplinary community.

The ultimate challenge is to facilitate a transformative learning experience, through which all of our students, regardless of background, are able to link artistry to the transformation of self, to the contemplative and the spiritual, to the expression of personal identity, to 'revealing the diverse expressions of a shared longing: the basic and enduring human urge to transcend the ordinary and experience the sublime' (Francis 1996:1).

A reflection on what we accomplish

We introduce students into the visual arts disciplines and the disciplinary discourses (and here I use the term discourse as it is communicated in text **and** through the medium of the artwork), using a mixed-model approach. At the outset the lecturer-practitioner is presented as the expert and the student is styled as an apprentice and is inducted into the discipline using the grammatical approach that artists and apprentices have followed over the centuries, in cultures across the world. As the year progresses the lecturer-practitioner becoming more of a companion / co-constructor of knowledge and the emphasis is placed on the establishment of a supportive community of practice, wherein students can forge their identities and develop their disciplinary 'voices'.

In order to introduce the disciplinary grammars we have developed what Jacobs (2007:9) refers to as a collaborative teaching practice, planned by the lecturer-practitioners as a body, with a programme presented as a series of shared teaching blocks, each centred round a common thematic exploration, steeped in conceptual complexity and artisanal challenge, and scaffolded on previously acquired layers of disciplinary knowledge. Students experience various combinations of lectures, demonstrations and workshops, with associated projects, supported by intensive individual tutorage, critique and assessment. There is an ongoing, and not always welcome, project to link practice to theory.

There is a range of complex literacies embedded in the design grammars that the students engage with through this process. Carter (2008:70) suggests they need academic, visual, societal, material,

scientific, mathematical, spatial and graphic literacies. He says each of these is complex and multilayered and requires cognitive understanding, conceptual engagement, problem-solving ability, technical skills and artisanal mastery, and that each layer should be built on a foundation of disciplinary knowledge, as well as an understanding of the relationship of the discipline to the broader society.

The lecturer-practitioners work in a discursive process with the students to enact and make explicit the grammars, the modes of thinking and making and being. Skills and techniques are modelled; the student(s) consult, listen, question, voice; the lecturer(s) advise, demonstrate, and give formative assessment as the work takes shape.

Few of our incoming students value the opportunity to talk or write about art, let alone aspire to contribute to the academic textual discourse in any significant way. Students recognize qualities they value in art, but find these difficult to put into words. They want to make art, not write about it. At the outset, they show a tendency to plagiarize, and there is little evidence of critical engagement. We have successfully introduced a mixed model for the Theory and Communication modules with a discipline-critical focus on multiple readings. Hodges says that research has shown that teaching *about* writing in a decontextualised way is not as effective as helping students with their writing as part of the mainstream courses they are studying (Hodges 1997:78 in Quinn 2007:1). Based on this thinking, we have formed a transdisciplinary cooperative with language and literature specialists, to 'develop shared literacy practices in the genres of academic writing that are embedded in our disciplinary discourses' (Fairclough 1989). We use a writer-respondent approach to essay drafts, wherein lecturer and consultant work together, firstly to unpack the essay topics in workshops, and then in responding to multiple drafts.

As the year progresses the studio focus on the acquisition of the grammars broadens and the emphasis is placed on more conceptually grounded and experimental outcomes; the theory focus moves from the acquisition of academic literacies and writing skills towards the critical consideration of art production from the perspective of a Neo-Marxist /Freireian model. By the end of the year each student, regardless of whether they entered the programme with a background in art or not, has a theory portfolio of reflective journal and academic essay writing, and a studio portfolio of drawing, photography, graphic design, sculpture and three dimensional design, ceramics, painting and printmaking.

After an interactive, engaged and intensive period of teaching and learning, through a process of apprenticeship, mentorship and community, the students prepare to move up to take their places in one of the senior directions. The evidence of the transformative learning experience they have undergone should be visible in the portfolio of work. The evidence of the efficacy of the programme is to be seen in a continued high pass rate.

Gee (1999) is reassuring about the idea of discourse / disciplinary apprenticeship remaining valid in the present day, suggesting that an academic discipline is a semiotic domain inhabited by an affinity group of 'insiders' who shares practices, goals, values and norms, and that mastering a semiotic domain involves joining an affinity group as an apprentice, and learning the design grammar from the 'insiders' (Gee 1999:182). He describes a discourse as a configuration of knowledge that manifests in particular ways as habitual forms of expression and which is articulated from a particular subject position, and which represents a particular set of interests. It enacts and recognizes specific socially situated identities and activities (Gee 1999:111) and it represents the ways of behaving, acting, valuing, thinking, believing, speaking, reading and writing that a specific group accepts as instantiations of particular roles within the group (Gee 1999:86).

It stands to reason that the grammars in question do not only induct the apprentices into the practice, they also foreground the world-view of Gee's dominant 'insiders', and this may have its downside. Freire (1998: xiii) warns about the tendency of some academics to 'suffocate' discourses different to their own. The Freireian reading is that a disciplinary discourse is directive, not innocent, and that this is acceptable, as long as there is respect for difference in ideas and positions. In setting out to initiate someone into the discipline it is probably inevitable that there will be an agenda, wherein the lecturer-practitioner represents an own world-view, foregrounds an own cultural understanding, and infuses this into the conversation. Largely depending on the lecturer-practitioner's approach, this could be read as cultural hegemony or it could be interpreted as the proffering of a grammatical structure (albeit

one that might be linked to world view) that can be used and modelled and reconfigured by a diversity of students, according to their different individual and cultural intentions.

There is ample historical evidence that the visual arts discourses are not written in stone. As the constitution of the affinity group changes, so the prevailing ways are challenged and the practices take on different forms. So whilst the discourses have their origin in 'the tradition' and 'the academy,' terms that hardly suggest an affirming transformative practice, the reality is, that over time the tradition has been under constant revision/attack from within. In an ongoing cycle, artists, trained in the grammars of the discipline have reinvented the disciplinary discourse community, and the reading of the theory and praxis of art, from inside/outside/inside the walls of the academies. Our growing diversity of students joins what is in effect a tradition premised on change.

A reflection on the construction of identity(ies) and voice(s) in a community of practice

Mead (1934:173 -178), maintains that the individual's identity emerges through the process of 'social experience and activity', with an interconnection between the social structure and the structure of the self. He suggests that there is an 'I' and a 'me' in each open self, the me being the socialized self, the organized set of attitudes that responds to the 'generalized' other, constructing itself as it sees itself in response to how others see it, the 'I' being the 'ongoing moment of unique individuality', the different, mirroring and understanding the world from an own point of view. Mead provides a key to understanding the complex relationship between the inner student 'I', which is creative, conditional and always under construction, and the outer, socialized student 'me', (often a multiplicity of 'me's') which is scaffolded in relation to the nature of the social / discourse community in which it finds itself. His model draws attention to the vulnerability of the 'I' in the face of a hostile or alien discourse environment.

Latchem (2006:43) confirms that identities are changeable and contingent and are shaped by society in general, and also that they can be [re]-formed and changed by the discourses in which they are constructed. We observe that students often self-censor their outside-the-discipline identities, and present only those that they anticipate will be well received, or try to read what the 'dominant insiders' expect of them in terms of a discourse identity, and then mimic this. Over their time with us they assume and shed identities and voices on an ongoing basis.

Ludema (2001:71) describes the strong social bonding and the positive effects of working in a community of practice. He suggests that its members experience a sense of safety, security, and protectedness that frees them up to create new knowledge, new conversations, voices, vocabularies and ways of understanding things.

Lave and Wenger (1998:91-102) explain the community of practice as a diverse and socially complex group that exists in a shared domain, a group who are mutually accountable, and who are engaged in a joint and enabling enterprise in which they collaborate over a period of time, sharing ideas and interacting regularly. In this group 'situated learning' takes place, where active participants construct disciplinary knowledge whilst at the same time constructing shared identities through engaging in and contributing to the practices. Our community exists as just such a social, interactional process, with ongoing negotiation of meaning, and, as they suggest, it is always in the process of change as people move in and out of the domain.

A reflection on the challenges of building a transcultural / transdiciplinary project

We set out to establish a safe space for our diversity of students to work in. Beyond the physically secure space that is a prerequisite because of the unsafe nature of our society, there is a focus on creating an existential safe space, where students feel free to make mistakes and question, where they are emotionally secure, with room to express their prior experience and explore their own sensitivity without facing derision (Brownlee 2003:84).

This space has the potential to function as a social condenser, if, as a sense of community develops between diverse groups of peers, the hegemony of the dominant group (whichever it is), is broken

down in the ebb and flow of artistic engagement, in the fluid process of connection and disconnection, as the students unpack and examine their identities, cultural values and beliefs.

There are well-credentialed proponents of the value of transculturality, transcultural communities and the conceptualizing of transcultural space. Berry and Epstein (1999:137) refer to a transcultural transformational change to a cultural-valuational structure, where existing group identities and hegemonies are deconstructed and altered in such a way that everyone's sense of belonging, affiliation and self would be altered, not just those of the devalued groups. They suggest that people need to be weaned from their attachment to a fixed cultural construction of their interests and identities.

Bhabha (1994)(1996) promotes the idea of a 'third space', a mutable in-between that serves as a space of potential and enunciation, where there is ongoing negotiation and acceptance of difference. He rejects the essentialism of fixed binary categories, of culture, identity, blackness, whiteness, opposites and polarities. Instead he promotes the exploration of the hybrid space in between, a space of 'ambivalence' that encourages the transgression and subversion of categories. He refers to the notion of 'interruptive' space where new identities are formed, and where there is room for innovation, contestation and collaboration. Although not everyone holds with his concept of hybrid space (it can be read as a cross-cultural exchange that devalues and negates the inequalities of power relations, (Ashcroft, Griffiths & Tiffin 2000:37)), Bhabha's model provides us with a conceptual starting point for our project, which is about helping our students to find a safe and accepting space within which they can construct identity(s) and artistic voice(s).

Rushdie (1988:106) envisages a world that 'celebrates hybridity, impurity, intermingling, the transformation that comes of new and unexpected combinations of human beings, cultures, ideas, politics, movies, songs. It rejoices in mongrelisation and fears the absolutism of the Pure'.

These writings about hybridity and transculturalism lead to conceptualizations of community and identities that move beyond the discourse engagement; that move into the realm where new social space and social fabric are manufactured. If we are to grow our transcultural community of practice into one that contributes to the world around us, one that promotes Madison's (1997) 'ethic of mutual recognition and reciprocity', we need to engage with the 'problematics of contemporary culture' of which Lewis (2002) speaks, we need to expand the edges of the disciplinary discourse in a way that encourages students (as well as lecturer-practitioners) to interface with the outer world of socio-political-economic-ecological issues, whilst at the same time helping them to interrogate their own internal and macro-cultural realities, as they set out on the path to becoming visual artists and design practitioners.

Where we have engaged in transdisciplinary initiatives, with student counselling, applied language specialists and institutional planners, the results have been worthwhile. Both students and lecturer-practitioners would benefit from a greater transdisciplinary engagement with other discourses, with the social sciences, literary studies, political science, philosophy, cultural studies and psychology, with shared projects that take students out into the community, that engage with contemporary postcolonial society, with identities and histories, with marginalized communities, and with the environment; projects that foreground both individual and group work and that allow for multiple and layered interpretations of the world around us.

Freire suggests that it is our ontological vocation to be a 'Subject who acts upon and transforms his world' (*sic*) (1998:14). He advocates a broadening of discursive practice: 'There are no themes or values of which one cannot speak, no areas in which one must be silent. We can talk about everything, and we can give testimony about everything' (1998: 58). In order to do this both lecturer-practitioners and students will need to acquire the requisite literacies and skills. If we examine the power relations within our studios, we have to acknowledge that we have both the 'children of the oppressed' (Freire 1972) *and* what Van Gorder (2007:8) refers to as the 'children of the oppressors' in our midst. Many carry a familial and community legacy of preconceptions and bigotry with them, however well concealed this may be in the day to day.

The actual experience of facilitating a transcultural community of practice is more fraught than words on paper would suggest. The space has to be constructed and maintained, and it can be disrupted at the voicing of an ill-timed word. When conflicts arise the space takes on a new and hostile reading,

and there is what Vidler (1992:iv) describes as a 'disquieting slippage', 'opening up problems of identity around the self, in relation to the other.' When this happens fault-lines appear, and students regress into stereotyping and labelling. Lecturer-practitioners have to remain attuned to the atmosphere in our studios and intervene.

But both students and lecturers have been socialized in an environment where vigorous discussion around issues of race, politics, gender or religion, around the self and the 'other', is avoided, whilst the stereotypes embedded in our cultures are continually reinforced through jokes and relayed urban legends. As lecturer-practitioners we also have to acknowledge the fact that we are implicated in the reading of the predominantly white power structures within our institutions. The demography of students is changing, but the continued whiteness of staff reinforces the reading that academic power and intellectual wealth and privilege, remain in white hands. When there is a 'disquieting slippage' in our studios we are easily viewed as the gatekeepers of white academic supremacy, as the prescribers of cultural hegemony.

If we aim to create a meaningful discursive transcultural space, one that discomforts hegemonic practices, we need to look beyond our disciplines for literacies and skills that can assist us in making and maintaining connections with our diverse community of students. There are multiple readings that take us beyond our discourse comfort-zones and have the power to shape our understanding of the fluid social space within our community. Freire, Torres and Apple focus on epistemological, political and ethical issues related to transformative education. Bell and Griffin (2007) present methodologies for opening up an interrogation of diversity and social identities within the teaching and learning environment. As a point of departure I suggest that we need to develop the ability to recognize and decode and respond to the hegemonies that Steyn (2007:1-13) suggests are embedded into our South African cultural milieu. Her model for diversity literacy includes a set of cultural reading practices based in critical theory; it lists core grammars that need to be internalized to enable a person to make a perceptive analysis of prevalent social climates, to facilitate discussion and critical analysis, to engage with issues of transformation in an informed way, to recognize the symbolic and material value of hegemonic identities, to interpret coded hegemonic practices, and to recognize the relationship between learned social identities and social practices.

I suggest that the collaborative teaching and learning practice reflected on in this paper, with its high levels of engagement, with its stepped progression, where the student moves from an apprenticeship paradigm towards full membership of the disciplinary discourse community, should be viewed as a responsive and best practice example of transformative education. Our practice maps snugly to theories, specifically those that focus on the acquisition of grammars and literacies, and on the transformation of the individual and the construction of identities within a community of practice.

I have briefly focused on the potential of the transcultural / transdisciplinary project as a way forward, as a means of creating a space where lecturer-practitioners and the growingly diverse body of students can co-construct identity(s) and artistic voice(s), whilst relating their practice to the broader society beyond our doors. I have highlighted some of the challenges that we face, as we move to grow our hybrid community of practice, and I have acknowledged the (urgent) need to expand our range of discourse grammars to embrace the literacies of diversity, and the politics of change.

Each year will bring us a different collective, with different needs, different aspirations and different potential. Each year we will need to marry praxis with theory, theory with praxis, and respond, (differently).

Our teaching project will never be grounded in exact science.

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Short Biography

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NURTURING THE PERSONAL AND THE INTUITIVE IN THE DESIGN STUDIO

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Abstract

The design process, like all creative activities, involves both rational aspects and other less easily-explicable non-rational aspects, such as the roles of intuition, imagination and personal insight. There are therefore different ways of knowing and learning involved in teaching design.

In an academic context, such as that of the university, where the design educator is expected to defend his or her teaching methods with intellectual rigor and academic credibility, the normal reaction is to explain design as a problem-solving activity, with the specific cognitive techniques and thinking strategies used by the designer clarified as much as possible. Specific stages of design have been identified and these can be taught with relative confidence by design educators. The development of technical skills is also dealt with at length in most design schools, but the more "fuzzy" non-rational aspects are usually avoided. In my experience most design teachers are not sufficiently confident to explore the potential roles that these may play in the design process. Students are guided in terms of methods, skills and techniques, but are usually left to find their own way through the more 'mystical' lands of intuition, empathy and imagination.

This paper will attempt to address this rather unsatisfactory situation by arguing for a more balanced and holistic approach to design education, in which both the personal, irrational aspects of the designer and the more rational, objective aspects of the design process are taken into account and nurtured.

A definition of design as an interactive process will be presented at the outset of this paper, illustrating that it is a highly personal process, one in which both the "design problem" and the designer him/herself are changed by the process.

Design as a "creative encounter" between the self and the world will also be considered. The concept of a "creative mode of being" will be examined in the context of the design studio. In addition to this, the heuristic nature of the design process, which calls for an attitude of freedom, not-knowing and exploration, will be discussed. Eastern philosophical concepts will be presented and analysed in an effort to understand how the intangible and highly personal parts of the design process may be nurtured intelligently by the design educator.

Key Words: *design education, creative encounter, intuition, play, beginners' mind*

Introduction

The design process, like other creative activities, is multi-faceted. Whether one is designing a piece of furniture, a logo or a building, the process involves both rational aspects and other less easily-explicable non-rational aspects, such as the roles of intuition, imagination and personal insight. There are therefore different ways of knowing and learning involved in teaching design.

In an academic context, such as that of the university, where rationality is valued above all else, this often presents difficulties for the design educator, who is expected to defend his or her teaching methods with intellectual rigor and academic credibility. No single prescribed teaching methodology exists in the field of design education, and there are no clear-cut criteria for evaluation. One could argue that, compared with the precision and clarity of thought in the sciences, design is a "messy" activity and the teaching of it may be seen as equally so.

One response to this perception is that design is presented largely as a problem-solving process, which provides a cognitive framework of analysis, synthesis and evaluation (Lawson 1990). But as designers we all know that this is only a fraction of what is really involved.

In the field of architecture a broad way of measuring the success of a design is by considering the 3 categories outlined by Vitruvius: *utilitas*, *firmitas* and *venustas* (Evers 2006:12). *Utilitas* refers to function, *firmitas* to structure and *venustas* to that elusive quality inherent in all good design, whatever the field, which is "delight". This latter characteristic is this intangible and highly personal contribution to the design process, and when it is present in a design, it is unmistakable. Unfortunately though, it often appears to be lacking.

Since the products of all design must inevitably be evaluated comparatively, the fear of failure often results in students settling for 'safe' solutions, rather than imaginative, fresh ones. They typically resort to tricks, techniques and imagery that have worked for other designers in the past (McNiff 1998 and London 1989). Predictable, formulaic responses are the result, with designs often lacking a personal, delightful quality. Instead they are merely poor imitations of the fashions of the day as seen in the glossy magazines. This perception is based on my personal experience of nearly 20 years as a design educator, external examiner and visiting lecturer at a number of architecture schools in the country. It forms the basis of research I am currently engaged in, which aims to investigate the role of personal worldview as a catalyst in nurturing intuitive thought in the creative process.

Of concern to me is that the personal intuitive response is not being given enough attention in the design studio, and this paper argues for a more balanced and holistic approach to design education, one which values the personal and irrational as well as what is usually thought of as the more objective and rational aspects of the design process.

Research in the fields of design methodology and cognitive psychology has demonstrated that design is a complex series of intellectual activities embracing both these polarities (Jones 1970 and Reitman 1965). Design as a problem-solving activity involves conscious and unconscious selection, and much of design and creativity research has been an attempt to explain how unconscious selection occurs, for example by identifying techniques such as association, mind-mapping and other cognitive processes. These techniques, which aim to make unconscious selectivity processes conscious, are derived from mathematics, statistics and other heuristic methods of inquiry, and are easily understood. They can therefore be taught with relative confidence by design educators.

But the greatest value of design education does not lie in the teaching of problem-solving methods. These are obviously useful skills to develop, and are relevant to almost every professional education, but problem-solving in a design context deals only with the well-defined aspects of the design problem, and these are often limited in their value when compared with the power of an experienced designer's intuitive knowledge. The teaching of problem-solving tends to emphasise what can be explained over what is actually experienced, and it must therefore be borne in mind that the full potential of a designer can never be realised by only developing this skill.

The other dimension of the design process is the contribution of personal creativity, often referred to as intuition, which is difficult to explain but which cannot be ignored. MacKinnon (1970) describes the multi-faceted nature of human creativity as follows: "Most persons live a sort of half-life, giving expression to only a very limited part of themselves, and realizing only a few of their potentialities. In contrast, the creative person has the courage to experience the opposites of his nature, and to attempt some reconciliation of them in an individuated expression of himself."

The opposites to which MacKinnon is referring are reason and emotion, cognitive versus affective, and objectivity as opposed to subjectivity. The subjective domain of human experience, including feelings, fantasies, sensations and memories, plays an undeniable role in the design process and it is my belief that the greatest value of a design education lies in the integration of these personal aspects with the more objective ones. In this way a wholeness may be achieved, so that by integrating reason and feeling, we can address design education in all its fullness and achieve deeper, more meaningful results with our students.

This paper will consider the factors involved which may have an influence on the often-neglected personal aspects of designing. But first it will consider the nature of the design process itself, as a process that changes not only the environment, but also the designer.

Design as an interactive process

It is widely acknowledged that the design process is an iterative one, consisting of insights and evaluations that do not necessarily occur in a linear manner. Many analogies for it have been proposed. Zeisel (1981) uses the metaphor of a cyclically converging spiral to represent the process, in which each cycle in the spiral includes the three basic activities of imaging, presenting and testing. Imaging is the generation of mental representations, which may be pictures, analogies or abstract ideas that provide visions for a possible solution. Presenting involves the commitment of mental images and ideas to physical form, such as doodles, drawings, notes, or models. These then allow the designer to see them, manipulate them, and communicate them to others. Testing is the evaluation of the presented design ideas. The wide circle at the beginning of the converging spiral represents the "broad brush stroke" of the designer's initial attempts at responding to the design problem. The knowledge gained in each cycle of imaging, presenting and testing is then applied to the following stage, and the circle gradually tightens up until an acceptable design solution is found. The overall direction of the spiral is determined by the designer's ability to regularly "step outside" the process, in order to compare it to his or her emerging goals. The end point of the converging spiral is not absolute, but simply represents the decision of the designer to "live with potential and as yet unseen side effects of the problem."

This may give the impression that the design process is a tight, rationally controlled process, but as designers, we all know this not to be the case. The process also calls for more subjective input. For example, the process of imaging requires the designer to be able to draw from an inner store of memories, associations, fantasies and imaginings. It means being conscious of one's inner world of ideas and emotions. The process of presentation demands a commitment to one's own ideas and beliefs so that they can be transferred from imagination into reality, and this naturally calls for a sense of confidence in one's personal interpretation of the problem. Testing, or evaluation, requires an openness of mind that enables the designer to stand back from the work and look critically at it. It demands an intellectual curiosity and attitude of inquiry, as well as the habit of being extremely observant of the world around.

It is therefore clear that the subjective world is an important part of the design process. And there needs to be a clear understanding of when and where it can appropriately be applied. Peter Stringer, in his article *The Myths of Architectural Creativity* (1975) points out that both objective knowledge and subjective knowledge play legitimate roles in design education. Zeisel (1981:14) concurs by stating that designing is "a process that once started, feeds itself by both drawing on outside information and by generating information from within". There are therefore two sources of input, two kinds of testing and two kinds of knowledge. These should not be seen as separate, but the design process should rather be viewed as a process of interaction between the external objective world and the subjective inner world of the designer. The designer must therefore be clear in his or her mind regarding the exact nature and constraints of the problem, but on the other hand, must also explore his or her own world of goals, aspirations and intuitions. Out of this interaction a synthesis is discovered that becomes a highly personal response to the design problem. And as a result of this interaction, insights are discovered by the designer that become part of his or her own experience, and which ultimately contribute to his or her personal growth.

Design education therefore not only prepares the designer for their particular profession, but also provides him or her with an opportunity for "self-actualization", to use Abraham Maslow's term, "the becoming fully human, the development of the fullest height… that the particular individual can come to" (Maslow 1971).

It is in this context that I wish to draw attention to certain aspects of the design process, which, in my opinion, are often under-valued and misunderstood. Firstly, I will address design as a creative encounter enabling self-actualisation, and secondly, state of mind and 'ways of being' will be considered as powerful tools that design teachers may use to foster open and receptive minds.

Design as a creative encounter

At the heart of the design process, during the "imaging" stage, is what Rollo May (1994) calls the creative encounter. As every designer will recognize, the creative encounter is only an instant within a long sequence of experiences. The design process involves a complex range of cognitive and motivational processes, as well as emotional processes, that are involved in "perceiving, remembering, imagining, appreciating, thinking, planning, deciding and the like" (MacKinnon, 1970:21).

This complexity is not only tolerated but also normally welcomed by the creative person, and it is ultimately experience and intuition that enable the designer to make sense of it all and come up with a strong, unified and appropriate vision.

The creative encounter, according to May, is an "act of encounter" between two poles, which he identifies as the self and the "world-waiting-to-be". He quotes Archibald McLeish, in his book *Poetry and Experience* (1961:8) who uses the more universal terms of Being and Non-Being as the two polar elements of the creative encounter. McLeish in turn quotes a Chinese poet: "We struggle with Non-Being to force it to yield Being. We knock upon silence for an answering music." What this means is that the Being, which is the manifestation of creativity or the creative product, i.e. a poem, building or piece of music, does not come from the creator or designer, but rather through him. It involves the creator (designer) allowing himself to experience reality directly. The vision of the artist is therefore to be an intermediary between the subject (the person) and the objective word (the world-waiting-to-be). And essential to this role is an attitude of receptivity. This is not to be confused with passivity, but rather the creator / designer holding him-or herself alive and open to hearing and feeling as far as possible. It requires a suspension of judgment, an openness and a willingness to be the vehicle for whatever vision or idea may emerge. It is the opposite of what is referred to as willpower.

It is essentially a neutralisation of personal will or intent, in a sense "going with the flow", similar to the Taoist idea of yielding and moving through situations like water, never resisting but always bending and adapting. The word Tao literally means a way, path, or route to take. It is also seen as an active, living principle that governs all of nature, including the heart and mind of human beings (Willis 1987:18). It implies that spirit has flowing energy, once quite an unusual idea in western terms, but one which is more readily being accepted, as the world is full of its evidence. Tao works in constant cycles of transformation and change. The laws of cause and effect, and the cycles of nature are among its most obvious examples.

The physical manifestation of Tao is *ch'i* or "life-breath", as Chuang Tzu calls it (Willis 1987:49). *Ch'i* was identified by the Taoists as being the underlying or continuous essence of all reality, and in the quantum field theory of physics, this very same property is found to make up physical reality and is demonstrated as a real physical phenomenon. "There is actual evidence in physics to prove the existence of a universal unity in reality, or rather the unity of the physical or creative energy of spirit" (Willis 1987:58).

Ch'i is said to move freely and continuously in an uninterrupted current, yet it is also totally natural and effortless. *Ch'i* is never static in its action, even though it is in its essence incomparably still, undifferentiated and all-encompassing. "This is not contradiction, but integration", according to Taoist philosophy (Willis 1987:58).

Amit Goswami (1996), a physicist, has explored the relationship between quantum field theory and the creative process in several of his papers and books. He uses theories of quantum physics as a way of understanding the notion of openness to all possibility during the creative encounter. In contrast to the act of intention, which is a narrowing or lessening of possibilities through observation and attention, Goswami sees the creative state of mind as one in which all possibilities exist simultaneously and fluidly in a field of energy.

This fluid world of potential and possibility is the world of the design studio, in which we ideally become clear and unique conduits for all that is possible. It is a way of being, which is more than a state of mind, and one that I believe can be nurtured by the design educator. Buddhist philosophers refer to it as Beginner's Mind, a state of curiosity, alertness, awareness, and openness to all

possibility. According to Shunryu Suzuki (1982:13) “the mind of the beginner is empty, free of the habits of the expert, ready to accept, to doubt, and open to all possibilities. It is the kind of mind which can see things as they are,” It is an attitude of not-knowing, which is soft, flexible and fresh, and is accompanied by a sense of freedom conducive to mental and emotional exploration.

One of the effects of adopting Beginner’s Mind is the experience that Maslow (1971:62) refers to as a “peak experience” in life, a “transcendence of self… a oneness where there was a twoness, an integration of some sort of the self with the non-self”. It is an experience of timelessness, in which one “loses his past and his future” and lives only in the moment. Mihaly Csikszentmihalyi (1990) calls this the experience of “flow”, in which one loses all sense of time and space, accompanied by a feeling of union with the environment, whether it is a mountain one has to climb, or a design problem to solve.

This creative encounter is surely one of the most rewarding aspects of the design process, and ways in which we as design educators can nurture it, deserve attention. I propose that by encouraging our students to adopt an attitude of openness and receptivity as opposed to knowing, and by giving them permission to play as a prelude to problem-solving, we may extend the creative potential of the design process and the design student.

A creative way of being

Maslow’s concept of “intrinsic learning”, which is learning for its own sake, as opposed to learning in response to the expectations of others – our peers, society or parents, is important in this regard. Intrinsic learning occurs when we are internally motivated by our desire to better understand ourselves and the world around us and inside us, and it is only in this context that we can truly explore, play and discover. Maslow (1971:57) describes self-actualizing people as those who experience a sense of playfulness in their work. By losing themselves in the process, they allow work and play to become one and the same thing, but most importantly, they value their work for the fun and enjoyment it gives them.

Play has long been recognized as an important factor in creative activity (Runco 2007) and design at its most inventive is also at its most playful. It occurs at the boundary between the inner world of the self and the outer world of reality, and this in-between world has been described by psychiatrist D.Winnicott (1971) as a “third area of human living”, an area essential to human growth. He says “on the basis of playing… we experience life in the… exciting interweave of subjectivity and objective observation” (Winnicott 1971:64). Huizinga (1950) extends this by saying that “to be a sound culture-creating force this play-element must be pure… It must not be a false seeming, a masking of political purposes behind the illusion of genuine play-forms. True play knows no propaganda; its aim is in itself, and its familiar spirit is happy inspiration”

This can only occur when one is in the right state of mind. Kokot and Colman (1997) argue for the existence of what they call a ‘creative mode of being’ and compare the attitudes of highly creative children with those of creative yet socialized adults, who often express a frustration and sadness at having lost something of their natural or original nature, their Beginner’s Minds. The authors claim that the continued processes of social conditioning in the Western world result in the original or essential self being left behind and ultimately forgotten, with the development of a false sense of self that inhibits creativity from early childhood. Rather than seeing creativity as an additional aspect of the human personality, which can be developed by specific programs, they claim that creativity is a way of being, and that creative individuals are those who live closer to this “essence of being” than others. They describe two states of being: the essential and the conventional.

The essential mode of being is based on the experience of ‘being’ and is non-separating or whole, open, intuitive, spontaneous and receptive. It lives in the moment, and is a non-competitive, flexible and direct way of knowing the world. In contrast, the conventional mode of being is a state of ‘becoming’. It is separative or fragmentary, defensive, factual, calculative and based on assumptions. It lives for past or future and is competitive, inflexible and an indirect way of knowing the world.

In essence what they are saying is that the socially-conditioned creative person typically approaches the creative encounter from the mental mindset of fear and self-protection rather than one of curiosity

and wonder. So, the question is how do we, as design educators, counter this in the design studio, where we seek to bring out the freshest and most creative energy from every individual?

Conclusion

Perhaps the most important pre-condition for encouraging a state of creative surrender and openness to all possibility is the establishment of an atmosphere of trust and sincerity in the studio. By creating conditions in which our students feel confident and safe enough to enter into the "creative mode of being", they will feel free to explore and experiment without fear of embarrassment. Knowing that they are allowed to, in fact, are almost expected to make mistakes, is very liberating for any student of the creative arts. It eliminates a fear of failure and allows them to take chances in an exploratory and playful manner, all of which are important for a true creative encounter.

Benjamin Zander (Zander & Zander 2000:27), the world-renowned conductor and music educator, has developed a clever practice in the music studio for creating just such an atmosphere. He calls it "Giving the student an A". At the beginning of each new term, he announces that each student in the class will get an A-grade for the course, with only one requirement: that during the first two weeks of term they must write a letter dated six months later, i.e. at the end of that term when they will be evaluated, addressed to him, outlining exactly what will have happened to them during that period which makes them an A-grade student. Phrases such as 'I hope' or 'I intend' are not allowed to appear in these letters. Instead Zander is interested in the person each student will have become in six months time. They must describe as clearly as possible the attitudes, feelings and worldview of that person (themselves), who will have done all he or she wished to do. The conditions for becoming all that they want to be are therefore brought to the fore, as the students are encouraged to visualize their full potential, rather than focus on their possible weaknesses. Zander explains that this practice aligns the educator with the student rather than aligning with certain standards set against the student. In this way a sense of self-confidence and mutual trust is built up, as educator and student work together toward a common goal. Zander's success in music education is clearly evident in some of the DVDs showing him at work (Zander, 2006), in which one can experience the confidence and joy of his students firsthand.

I am not suggesting that all design educators should adopt this specific practice, but what emerges here is that it is possible for us to create conditions in which the students feel comfortable and confident to explore their so-called opposites, their rational and emotional aspects, and in doing so, bring about richer and more personal design solutions. By working with them toward a common goal, we allow them to open themselves up to all possibilities, because if they fail during the process, it does not matter. By leaving evaluation to as late a stage in the design process as possible we give them the freedom to explore and play.

And it is only by establishing a sense of personal self-confidence and psychological safety that the students can return to their original, whole selves. By allowing themselves to play, they are encouraged to enjoy the process, with no immediate concern for any specific outcome. A sense of unity with the so-called design problem is achieved, rather than the sense of facing an obstacle. Maslow's "oneness where there was a two-ness" (Maslow 1971:62) is realised, a state in which the student of any creative discipline experiences the creative act as part of a larger universal process, in contrast to the more stressful western notion of creativity in which the individual is central to the process, and is either successful or unsuccessful.

If we therefore accept that true nurturing of creativity in design education requires the embracing of opposites, the rational and the emotional, it is essential that we allow our students adequate opportunity to enter into a 'creative mode of being', so that they can explore their inner, most personal responses to design challenges without fear of criticism. This could take many forms, only one of which is the personal journal, in which they can safely explore their ideas using words, images, collage, drawings and other media. Once a strong and personal vision has been conceived, a dialogue can then occur in the studio, in order to address the other requirements of design, such as functionality and robustness, with confidence.

Personal and individual contact between studio staff and students is therefore an essential factor in order to recognize potential, stimulate discussion and enable them to develop their ideas into successful design products. In my experience this is often a problem, as in our studios contact time is

short, student numbers are large and studios are under-staffed. The ratio of staff to students is a crucial consideration, particularly in more complex design disciplines such as architecture.

And how can we place less emphasis on success and more on process? Perhaps one way could be to give our students more projects during the year than they need to submit for evaluation at the final portfolio exam. Some projects could be used as opportunities for growth and discovery, rather than merely a guaranteed and mediocre pass.

Lastly and most importantly, I propose that our own state of mind and attitude plays an important and unacknowledged role in the design studio. The challenge of teaching design is to "encourage our charges by ourselves being those creative persons with whom they can identify. Thus we each would become an educator in the original meaning of the word – one who brings forth or educes from another that which exists as a potentiality within him, through being an example of that which is desired" (MacKinnon 1970:32).

Are we as design teachers truly brave enough to adopt a Beginners Mind? Are we prepared to enter into a 'creative mode of being' with our students so that we can gain their trust and increase their self-confidence? Or do we feel we need to "know" all the answers? It is often easier to (subtly) impose our own ideas on students, so that we can achieve safer solutions and higher pass rates, but in doing so we rob them of the possibility of personal growth. For there are no fixed answers in this wonderful world of design, there are only opportunities. As design educators we are in the position of being able to inspire our students to reach their full potential, by working with them in an open and playful manner. In doing so, we enable them and ourselves to become more effective conduits of creative possibility, so that we may contribute to our chosen field of design in a personal and meaningful way.

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Short Biography

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TOWARDS AN EDUCATIONAL STRATEGY FOR PROMOTING SOCIAL, ENVIRONMENTAL AND ETHICAL AWARENESS IN VISUAL COMMUNICATION EDUCATION

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Abstract

Visual Communications at the Nelson Mandela Metropolitan University (NMMU), incorporating graphic design and photography, aspires to instil social, environmental and ethical sensitivity within students in order to meet a perceived increase in demand for these issues to be addressed at local and global level. To meet this imperative students are required to produce visual communications solutions for charitable organisations and participate in community-linked photographic excursions that expose them to social and environmental issues within real life scenarios. Anecdotal evidence suggests that students do develop a strengthened sense of awareness within the current approach, given that the research and design process facilitates exposure to and interaction with people and environments on a personal level. However, the teaching and learning approach, including assessment and feedback, tends to emphasise the creative end-product over social and environmental sensitisation. Furthermore, this approach neglects to make explicit the importance of developing awareness as part of a personal and enduring value system within the student. As such the focus of this paper, which reports on research in an early stage, is to describe a proposed project framework and a set of criteria appropriate for emphasising social, environmental and ethical consciousness in visual communication students. A qualitative research approach is used, drawing primarily from literature and experiences within the teaching and learning environment, and incorporates student reflections. The paper contextualises social and environmental ethics within visual communications at the NMMU. Aspects of Robinson's Seven Doors Model for behavioural change (2007) are incorporated and research highlighting reflective journaling strategies is explored in the development of the framework and the criteria. It is vital that the personal development of social and ethical sensitivity within the student is made explicit and is recognised, particularly in the current climate of social, environmental and ethical imperatives within visual communications at the NMMU. This would contribute towards real development as opposed to a mere window-dressing approach, which seems to be a concern within the discourse of sustainable design.

Keywords*: design, education, social environmental and ethical sensitivity, social consciousness, environmental consciousness*

Social, environmental and ethical awareness and visual communication education

> There is an old Chinese curse: may you live in interesting times. No one could deny that the times we are living in would qualify for that description. Perhaps that's why many of us yearn to temper the increasing pace of life with a return to gentler values and a world where a desire for the greater good underpins all thoughts and actions. (Witepski 2008:24)

Debates surrounding social and environmental concerns permeate contemporary life at many levels, highlighting important issues such as globalisation, consumerism, the changing environment and the exploitation of natural resources (Diamond 2005; Klein 2001; Kovel 2007). These issues are becoming increasingly significant within the field of visual communication and, as such, also within visual communication education. AIGA (American Institute of Graphic Arts) has established a Centre for Sustainable Design to address the growing concern surrounding sustainable design within the industry (AIGA 2008). Social and environmental ethics can be linked to sustainability, an important, though perhaps overused term. Benson (2009) following the United Nations World Commission on Environment and Development (WCED) defines sustainability as follows:

> Sustainability is a systemic term that means "meeting the needs of the present without compromising the ability of future generations to meet their own needs." It

> demands that society strives to reach a collective balance called the triple bottom line. This is the overlap where we intelligently mesh the economy, environment and equity for all our species.

Although social and environmental design consciousness in South Africa is perhaps still in its infancy compared to more developed first world countries, a growing awareness is steadily emerging. This is becoming particularly evident through an increase in debate at educational conferences, in the media, and in literature. The 5th International Design Education Forum of South African (DEFSA) Conference held in Cape Town in 2007 focused specifically on a sub-theme 'Design for/and Development' (DEFSA 2009). A 2008 volume of the *Design> In Business* magazine, dedicated itself to exploring the status of social ethics, sustainability and environmental issues as it relates to the design profession and to design education in South Africa. Sensitive to growing social and environmental concerns, the February 2009 Design Indaba Conference promoted the question, "What can your creativity do?" and featured a number of people in Africa who have made significant impact within their own communities through creative thought (Design Indaba 2009).

Post-apartheid South Africa has made positive design contributions, particularly in the field of socially conscious design, for example in the public spaces that have been created in the Apartheid museum, the Red Location Museum and Freedom Square. However, in general, South Africa does not yet have a strong history and developed culture of social and environmental ethics and much still needs to be done, especially at educational level, to address this. Lange, president of the International Council of Graphic Design Associations (ICOGRADA) interviewed by Witepski (2008:26) comments:

> The education foundations provided by the South African design education system have not appropriately accommodated for enough training on ethical practice issues in the past and currently remain insufficient. Financial profits, titles and the number of awards that you have won dominate the minds of the majority of the profession.

It is not difficult to appreciate that social and environmental action, as a largely personal value-driven activity, needs to be preceded by sensitisation, increased awareness and the will to change. Szenasy (2004) accordingly comments, "Ethical decisions are personal. It is you—each one of us—who has to decide to do the right thing". People have to be persuaded by a personal conviction to change ideas, behaviour and take action, unless of course policies exist to enforce and impose behavioural change. Gardner & Stern (2002:27) highlight government, or law-based interventions, community-linked mediations or processes, moral, religious or ethical appeals and education as one of four possible approaches used to address environmental sustainability. Although it is important that the design sector equip students with knowledge, skills, and resources to facilitate the practical implementation of sustainable design, a vital step in the process is the cultivation of a personal value system that incorporates social and environmental ethics. Benson (2007) in his course goals for EDGE (Ethics of a Designer in a Global Economy) refers to this personal component as building "the foundation for an evolving code of personal ethics". Without this fundamental personal ingredient, social, environmental and ethical awareness is in danger of being reduced to a purely theoretical proficiency, to factual knowledge, where little long-term influence or impact can be expected. Schmidt (2004:19) explains how personal experience is able to bring authenticity to social and environmental issues:

> I had already studied globalisation prior to meeting our visitors. But listening to Ms. Hernandez made me realise something new. For the academic means we can employ to discuss globalisation, the only way I can see our field achieving a more substantial understanding of the relationship between globalisation and design, is if we first come to the subject with a personal and highly impassioned caring for the welfare of those afflicted by injustice and a respect for those who fought such inequity.

Going even a step further, Sudick (2008) presents sustainability as a "new literacy" for the 21st century and appeals for it to be incorporated as a fundamental and practical capability within the current shifting and intricate social and global situation. Another way of looking at this would be to consider social and environmental ethics as a critical component of life skills (or transferable skills) in the design education environment. The value of transferable skills, in contrast to transient commercial market demands for technical skills, which perhaps only satisfy short-term employability, has been highlighted in education debates (Davies 1996; Design Council 2007). Transferable skills can be described as skills that, in contrast to the latest software programme or technology driven-techniques, transcend time and become part of a student's ability to function in an adaptive way to future life endeavours. With the focus shifting away from technical training, an alternative possibility exists where

visual communication students are enabled to contribute in a more integrated and positive way in society (Inciong 2004:94):

> In this way, they practice and live the discursive nature and respond in kind with a body of work that bears the mark of one who truly knows, which will no doubt alter the market's perception of the designer from an abstruse jobber / hired hand / technician to indispensable resource.

Transferable skills can include a combination of knowledge, values, attitudes and skills with a particular emphasis on those aspects that related to critical thinking and problem solving, self-management and communication and inter-personal abilities. It is not difficult to see that social and environmental ethics has a place within the current transferable skills-set in design education, not only as knowledge, but also, more importantly, as personal value or even as Sudick's (2008) "new literacy". The question that remains is: how can we facilitate the development of social and environmental ethics, as a personal value within our visual communication programme at the NMMU?

Contextualising Social, Environmental and Ethical imperatives within Visual Communications at the NMMU

Social and environmental ethics underpins the philosophy and values of the Applied Dsign Department at the Nelson Mandela Metropolitan University (Cadle 2009). The visual communications programme places emphasis on the design student as part of a complex, interconnected and multi-layered system of social, cultural and physical components. The responsibility that comes with this position requires sensitivity towards social, environmental and ethical imperatives resulting from the intricate interrelationship between visual communication and society (Cadle 2009):

> We acknowledge that designers and photographers are visual communicators with a particularly responsible role to play in society as influencers and formers of public opinion, and individual and group behaviour… we are bound by duty to present to society a view of the world that respects intrinsic human values, morality and ethics.

Values within the Applied Design Department's vision statement, which focuses on encouraging students to think critically about their ethical role as visual communicators within society, include "creating an awareness of the environment in which we live that encompasses the physical realm and socio-cultural issues… acknowledging an obligation to contribute to the upliftment of society" and "focussing on the indomitable nature of the human spirit as a means to influence and provoke positive change" (Cadle 2009).

In order to implement social and environmental principles in a concrete way within the visual communications programme, students are involved in a variety of different projects throughout their course of study. Visual communication solutions – graphic design, photographic or film-based artefacts – are developed and produced for charitable organisations. Projects such as these include Sappi Ideas That Matter, a well-known international pro bono initiative, the Design Achievers Awards Programme, which encourages South-African socially-orientated design leadership, and the Vuka Awards, a film or animation-based public service announcement competition that focuses on South African societal issues. In addition, students participate in community-linked documentary photography excursions within the community that expose them to social and environmental issues within real life scenarios. Within each of these approaches students are sensitised and exposed to social and environmental issues through the conventional design process of exploring and researching the subject at hand – be it a client, product, organisation or environment. This process facilitates exposure to and interaction with environments and people within real-life scenarios. Students who engage and actively participate in the process develop an increased social and environmental consciousness. Anecdotal evidence, such as informal discussions with students and other lecturers, student reflection journals and formal student feedback, such as essays, and project evaluation reports, supports this observation. However, interrogation of our practice reveals that there are shortcomings within the approach. Firstly, submission requirements, assessment criteria (and consequent feedback) focus almost exclusively on the 'excellence' of the creative end-product, drawing emphasis away from the social and environmental sensitisation as an important outcome. Secondly, the process of developing social and ethical awareness as an enduring personal value is not always explicitly contextualised and facilitated within these projects. As a possible solution to addressing these issues, this paper, which, to reiterate, reports on research in an early stage, explores and describes a proposed project framework to facilitate the personal development of social and environmental consciousness within

visual communications students and outlines criteria that can be used as indicators in determining evidence of this. In the NMMU context, where the department's vision and mission focuses on social and environmental imperatives, it is vital to have an educational strategy that matches learning objectives and outcomes with assessment criteria and to reinforce this within the learning process. This would contribute towards real development as opposed to a mere window-dressing approach. Also, often, social awareness and sustainability are only achieved superficially in design, and its significance is not critically investigated.

Methodology

The overarching frame of this paper is qualitative, focussing largely on assimilating information from relevant literature sources and reports on research in development. The proposed project framework and evaluation criteria described and outlined here is under development in the Visual Communications programme at the NMMU at second year level. The paper draws from experience and observation within the teaching and learning environment over a period of approximately three years and is guided by student reflections. Content analysis of student journals provides insight into the student perspective – an opportunity to see what is important from within the student experience. The proposed project framework incorporates aspects of Robinson's Seven Doors Model (Robinson 2007), adapted to suit our purposes, and is influenced by literature highlighting reflective journaling strategies. Robinson's behavioural change model is well suited within our context as its intent is to support personal growth and promote enduring value-driven change. It emphasises positive reinforcement in contrast to negative images, which is the preferred approach in our teaching methodology. In addition, the model's aspects of self-motivation and self-initiation, what Robinson (2006) refers to as "voluntary change", are important in developing social, environmental and ethical awareness as an enduring personal value within the student. It is important to note, however obvious, that personal engagement, awareness and change cannot be coerced and that each student's background and experience is unique and should always be treated with sensitivity. Likewise, the social or environmental contexts that students are exposed to are also typically sensitive in nature and ethical concerns should be carefully considered within individual project contexts.

The Development of a Project Framework for Emphasising Social, Environmental and Ethical Awareness

Teaching and learning experiences and student feedback, specifically discussion and reflective journals, have provided insights that have guided the development of the project framework. What emerged as important, includes:

- Providing opportunities for students to actively engage with the experience on a personal level,
- Focussing on positive experiences rather than the negative,
- Building a sense of self-efficacy,
- Facilitating experiences that challenge stereotyped conceptions of social and environmental issues,
- Providing time and 'space' for students to contemplate, reflect and contextualise their experiences.

Two main streams, the one social and environmental ethics, the other the design artefact, are evident within the proposed framework. Although these are indicated within the framework as quite separate, activities within these two streams naturally do interrelate and shape each other. Key components of the framework include:
A. Project Brief,
B. Learning Activities to facilitate the development of Social and Environmental Awareness,
C. Learning Activities to facilitate the development of the Design Artefact (not discussed in the paper),
D. Submission Requirements, Assessment and Feedback.

The first stage in the process, *A. Project Brief,* provides requirements for both streams – social and environmental and the design artefact, and includes aims and objectives, outcomes and assessment criteria for the project. Relevant theoretical background and resources, including literature and audio-visual media, pertaining to social and environmental ethics and sustainability is provided and discussed in order to appropriately contextualise the foundations of the project.

Key stages are identified within *B. Learning Activities to facilitate development of Social, Environmental and Ethical Awareness*, namely, *Personal Engagement, Building Confidence, Addressing Obstacles,* as well as *Reflection Journaling and Group Discussions*. The first key stage here is to facilitate the process of *Personal Engagement*, the importance of which has been highlighted in earlier discussions (Benson 2007:1; Schmidt 2004:19; Szenasy 2004). Opportunities for this to emerge are presented within each project experience in different ways, in order to address the complex nature of each context. Students are placed in unfamiliar environments within projects or excursions, either as part of the documentary photography process within an excursion context, or as part of the initial research and information-gathering step within the process of developing design solutions for charity or community-based organisations. These environments are often very different to their own, for example a rural working farm with natural landscapes, an animal shelter, or a community centre in an underprivileged township area. Within environmental experiences for example on a rural farm, students go for hikes in the mountain, explore fossil fields and swim in natural river pools. Within social contexts, students are encouraged to relate beyond the surface level and to engage in more practical ways, i.e. not simply as 'spectators'. For example on the community centre excursion, some students assist by packing food parcels for HIV affected families and other students accompany and assist care workers in weekly home visits. In light of literature on the failings of anthropology, sociology and psychology in understanding the situation of 'others', together with significant literature on the 'victim' stream of documentary photography, the complexities of dealing with sensitive social contexts should not be underestimated. It is reasonable to expect that students may initially come to the situation as 'spectators', however the teaching approach aims to facilitate interaction beyond this level of mere exposure. The ethics of photographing the poor, for example, must be explored and discussed in the classroom situation before and during the project.

Within the project experience students interact and become acquainted with people and environments in order to challenge preconceptions. Content analysis of student journals identifies the breaking down of stereotypes within the *Personal Engagement* stage as a crucial component in facilitating social and/or environmental sensitisation. When people distance themselves from issues via pre-conceived ideas, or stereotyping, the personal element is undermined. Hooks (1992, p. 170) explains that a stereotype is an inaccurate, often simplified, form of representation, a 'fake' or 'invented' stand-in for reality and that "stereotypes abound where there is distance… when the steps that would make them real cannot be taken or are not allowed". Stereotypes and preconceptions can impede social, environmental and ethical awareness in that it enables people to justify their actions, or in this instance inaction, to themselves and others. The project experience, specifically the personal engagement process, helps to inhibit the stereotyping process and accordingly can encourage awareness and promote behavioural change. This is highlighted within student feedback and reflections, as many students comment with surprise at how the project experience challenges their initial expectations. With regards to an excursion to a farm, one student observes, for example:

> I feel somewhat useless in a sense that I don't know much about this lifestyle. Haven't been exposed to it often enough. We know about it but have never fully experienced it. We are so ignorant; we feel. Sorry for the people living here, thinking they suffering when we see their small houses, surviving on the absolute basics. Meanwhile they are actually living 'the dream'. They have more freedom and happiness than city people could imagine. I dream to have this lifestyle that entails far less complications although am trapped as if I was programmed to have an everlasting desire or attraction towards urban content, the 'fake'.

Within the context of social and environmental awareness, it is important in our teaching approach to work within environments and within social contexts where the positive can be emphasised. A care centre in the underprivileged township Missionvale is included annually in the visual communications excursion programme, because here, despite dire circumstances and poverty, the positive contribution made by the centre and its care workers leave students (and lecturers) inspired. Robinson's model emphasises that opportunities should be provided where the focus remains on the positive and on visualising a desirable future. Negative images should be avoided as they are disempowering, undermine motivation and may reduce a sense of self-efficacy.

The importance of building a sense of self-efficacy cannot be emphasised enough – to enable the student as an individual to believe that he or she can make a difference and contribute at small scale and also towards global change. Voronoff (2005:12), following Aronson *et al*, highlights the importance of perceived control in relation to self-efficacy. He describes perceived control as "a sense that one's

actions will make a difference" and self-efficacy as "one's sense of ability to take a specific action" (Voronoff 2005:12). The sheer magnitude of social, environmental and ethical issues at global level cause many individuals to feel a distinct sense of helplessness, and as a result a weak sense of perceived control undermines the sense of self-efficacy (Voronoff 2005:26). For instance, some people believe that installing energy-saving light bulbs will make a difference to energy consumption, however not all people feel or believe that this will make any real contribution to global sustainability. This factor can critically hinder the desired follow through from knowledge and awareness into behavioural change and finally to sustained practice. We find that an idea often surfaces within the project experience; one student notes, for example:

> "...throughout my days here in the Karoo – I've found that, more and more I'm taking more notice of where I put out my cigarettes, you feel guilty when you see a beautiful landscape, rocks so much older than you will ever be – and then there's a cigarette butt lying there."

Students' preconceptions are challenged when they realise that small contributions do in fact make a difference. Similarly, a relatively small gesture of giving an underprivileged family a photographic portrait brings unanticipated joy and in turn inspires confidence in a student to do more. Another student established a monthly collection of toilet rolls from fellow hostel students and in the end inspired a much larger collection drive that includes everything from clothing to tinned food for a Community Centre.

Within the project experience the processes of *Reflection Journaling and Group Discussions* are facilitated at key moments. The learning strategy of reflective practice is relevant as it encourages active participation and deep learning approaches (Schön 1987; Cliff & Woodward 2004). Ellmers (2006:7) following Davies comments that a reflection journaling approach becomes "a more reliable means of establishing student understanding than relying exclusively on the final design artefact". When students actively engage with the process of journal reflections, the journal itself becomes an end product that evidences and documents the learning process and in so doing facilitates making the developmental aspects of learning more explicit to the student. Reflection journals provides opportunities for students to reflect experiences back to their own personal context and encourages a personal dialogue (personal engagement) with questions, such as "How does the situation affect me?", "How do I affect the situation?", "How can I make a difference?" and "Why is it important?" (Robinson 2007). Reflection journal activities and facilitated group discussions are important in highlighting key stages in the process and provides an opportunity for students to identify stepping stones to achieving the intended outcome and encourages independent learning (Ellmers 2006). Concerns regarding the journaling approach include "procrastination, superficial and unreflective entries, waning enthusiasm, and unwillingness or inability to reflect" (Ellmers 2006:7). These concerns may be addressed by facilitating the journal process closely, for example, by asking students to reflect within narrower contexts or providing questions to initiate internal dialogue, and by facilitating group discussion where opportunities are provided for shared experience and developing richer understanding.

Other important steps in developing social and ethical awareness within the project framework include *Building Confidence* and *Addressing Obstacles*. Confidence building happens in different ways and is unique for each student. Observing positive contributions made by others – be it community centre employees, members of the community, or other students – plays an important role in motivation. The cyclical nature of confidence building occurs when students contribute and receive 'positive feedback' and personal satisfaction, which in turn inspires sustained activity. The step, *Addressing Obstacles,* provides an opportunity to pre-empt problems that students may experience on a personal level. Within the personal development process, it is only natural that students may for example experience barriers or doubt their abilities. The group support structure provides opportunities for students to raise concerns in a supportive environment, where issues can be shared, discussed and addressed.

D. Submission, Assessment and Feedback is the final stage of the framework. Depending on the specific nature of the project the social, environmental and ethical awareness submission requirement could take the form of an oral presentation, multimedia piece, podcast, essay, or poster, to name a few possible examples. The focus of this submission is for the student to contextualise their personal experience of social, environmental and ethical awareness within the project and to make it accessible to an audience. This submission is not assessed in a way where marks are assigned, as this has

ethical implications. However, certain criteria can be identified and function as indicators for social, environmental and ethical consciousness. The following criteria have been identified for this purpose:

- Does the student's experience reflect a process of becoming engaged with people and/or the environment on a personal level?
- Does the student's experience challenge stereotypes and preconceptions in order to understand the context better?
- Does the student's experience incorporate self reflection, in terms of answering questions such as:
  - How does the situation affect me?
  - How do I affect the situation?
  - How can I make a difference?
  - Why is it important?
- Does the student exhibit an interest, desire and/or optimism to implement voluntary change? (I want to?)
- Does the student exhibit confidence, and a sense of self-belief and self-efficacy? (I can do this?)
- Does the student identify possible obstacles in the process as well as ways in which to address or overcome them?
- Does the student exhibit aspirations for the development of sustained social, environmental and ethical consciousness and behavioural change for the future?

The final stage in concluding the project is a summative feedback session, where the students' work, as well as their experience of social, environmental and ethical sensitisation is discussed in context of the project experience.

Conclusion and Future Directions

At the core of our thinking is the belief that visual communication has significant power to influence and affect change, as Scalin [n.d.] comments:

> Graphic design [read visual communication] is the filter through which nearly all communication is now disseminated. Therefore graphic designers are in a unique position as the gatekeepers of information. What, how, and for whom we choose to communicate are crucial decisions that have a serious impact on our civilization.

Educators have the potential to make an important contribution to shaping the attitudes and actions of the future role-players in the visual communication profession. Reiterating Witepski (2008:24) people, including design educators, have the potential to contribute towards developing "a world where a desire for the greater good underpins all thoughts and actions". In order to ensure that this is done appropriately, exploration, self-reflection and interrogation of methods and approaches aimed at developing social and environmental ethics in visual communications is required.

The process of implementing and testing the framework, proposed in this paper, will provide further research opportunities. Knowledge and experience from other disciplines, such as sociology, anthropology and behavioural psychology, would be increasingly relevant during the implementation and assessment of the framework. This research, as a work in progress, provides a starting point – aimed at cultivating a personal enduring value system, with social and ethical awareness at its core, within visual communication students. This step can be viewed as an important foundation on which to build additional knowledge, skills and values at 3rd, 4th and 5th year level within the visual communication programme. It is envisaged that at these levels, social, environmental and ethical issues with regards to professional practice may be addressed. For example, students can be encouraged to develop visual communications strategies for developing industry awareness on sustainability issues and to gain practical and theoretical knowledge on sustainable professional visual communication practice such as environmentally friendly printing processes and the use of sustainable resources.

As design educators we hope to contribute to enabling students to develop as engaged, critically thinking individuals, who are sensitive to social and environmental issues in the world. Hopefully, the future design profession can make a contribution that will go beyond commercial interests, titles and awards. In closing, an excerpt from a paper delivered by Szenasy (2004) at the AIGA National Design Conference, rings true now more than ever:

> These are early days, but incredibly exciting ones. The last time that humanity was challenged to rethink the world, we came up with the Enlightenment, which served our kind very well up to now. So use whatever words you like, but understand that

you are at the center of a revolution where an ethical compass is useful and even essential. This may be a time when intellectual pursuits become as important as financial and entertainment pursuits. For without understanding the new world taking shape around us, we will surely go the way of dinosaurs.

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Short Biography

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PRE-TECH MAN

Thinus MATHEE
Photography, Vaal University of Technology

Abstract

This paper questions how we teach and practise within our various specialities without a holistic understanding of the self and our humanity.

Universities of Technology (UoTs) in South Africa are undergoing a search for identity that will better position themselves within the larger framework of human development. These institutions evolved from Colleges for Advanced Technical Education to Technikons, then to Universities of Technology. The example referred to, although limited to the discipline of photography, nevertheless relates to broad educational values that underpin appropriate and responsible education at higher education levels. Will all the efforts that go into exploring cross-, trans-, and multi-disciplinary courses reap long-term benefits for humanity, or are we just doing 'the new thing'? Are we educating people, or designers, engineers and photographers? Does our education enhance life experience? How will we be able to shift the emphasis of what we are doing from product to human experience if we do not have a thorough understanding of self and the people we are designing for?

These questions are not to be answered question by question, but rather as broadly underpinning a greater question of humane education. I suggest generic modules that draw on the humanities in support of the core modules that will provide the student with the skill to enter the marketplace and make a success of his/her career.

Limited emphasis is placed on human-orientated sciences within UoT programmes. Most universities are undergoing recurriculation and major restructuring to realign themselves within the Higher Education plan. This process might be the opportunity to revaluate what we are doing and how we can improve our courses to enrich students' capacity for self-interrogation and holistic human sensibility. This will provide the unique balance between technology and human sensibility that is currently lacking at Universities of Technology.

Key Words*: Higher education, Photography education, Human- focussed education, holism*

Introduction

In this paper I wish to interrogate the value of holistic education at higher education institutions with specific reference to the photography course at the Vaal University of Technology. My interest in holistic and human-centred education stems not only from the 20 years of teaching experience at a higher education institution, but more from a brief but intense formal education engagement in adult learning, and finally, in confronting meaning in my personal art works (photographs) as part of an advanced academic study.
The questions that arise are: Will all the efforts that go into exploring cross-, trans-, and multi-disciplinary courses reap long-term benefits for humanity, or are we just doing 'the new thing'? Are we educating people, or designers, engineers and photographers? Does our education enhance life experience? How will we be able to shift the emphasis of what we are doing from product to human experience if we do not have a thorough understanding of self and the people we are designing for?

The human focus

The ambiguous term *human* can also be replaced with humanity and the term *focussed* with friendly in order to eliminate too much debate on academic interpretations of the core issue, i.e. insensitivity to the human as the defining factor of our being. The literature-guided self-reflection, on a very focussed and small aspect of education in Higher Education, reminded me of our own fallibility in pursuit of a self-determined future. The theoretical contact with adult learning already mentioned made me aware

of the interrelationship between the educator (the self-human), the programme content (designed by the human), and the learner (the other individual human) in the context of "learning-centred teaching" (Gravett 2001:36). For me, the significance of this teaching approach is the emphasis on what the learning engagement is actually about - learning - and not just what Brooksfield (1999:41) refers to as "teachers' pandering to students' prejudices" which results in what he calls "cognitive imprisonment" for the student. My contribution to the conference theme is not necessarily discipline related, but rather human related.

Within the context of this paper I interpret inter-, cross-, and trans-disciplinary courses as reaching beyond the barrier of mere discipline and moving towards the human dimension. When Jansen (2009:9) refers to humanity in an article entitled "Our growing inhumanity" he states that "Humanities should be at the heart of university training". He refers to an alternative to Humanities as either Auschwitz or apartheid. His comment is most aptly directed at traditional universities with well-established faculties of pure humanities, a luxury Universities of Technology (UoTs) do not have. However, humans also lecture, study and work at UoTs. How do they come to understand the self and the other? The self as theoretical philosophical starting point in western epistemology, as well as the "care for others" (Besley 2005:80-83), might be basic foundational knowledge to the traditional university student, and totally foreign to the UoT student. No wonder Jansen referred to the UoT ethos as "a glorified high school" (Jansen 2006, as cited by du Pre 2009:52). Many of the appointed lecturers at UoTs were trained at traditional universities. They were accustomed to the notion of pure humanities, and maybe only missed it when it just was not there. Van der Merwe fittingly states that

> (T)he social sciences and humanities have an essential role to play in helping our society to contemplate the past and envision the future as we make a range of difficult and important decisions in the present (Van der Merwe 2004:1)

Pedagogy demands making decisions that affect others. I dare to say that the UoT's Technikon stigma will stay as long as an environment of humanly sensitive knowledge is missing. This, for me, contextualises the notion of holistic education that was referred to earlier.

Prof Jonathan Jansen further asks "what does it mean to be human... What does it mean to be human among other humans?" and: "how can the human experience be shared or expressed?" (Jansen 2009.9). His further concern over "Dramatic enrolment shifts in SA universities from humanities to commercial and management sciences" is echoed by the review of higher education in South Africa which highlights what it calls "the fourth major change" being the "serious" decline of enrolments for humanities programmes in South Africa, resulting in an exodus of experts in related fields from universities of South Africa, as well as the closing of related departments (CHE 2007:163). However, the decline in interest for humanities studies by prospective students is not the principle concern of my paper; but rather, the question is related to the paucity of knowledge pertaining to humanness and the sensitivity to the human as originator, user and consumer of technology within areas of academic and career-orientated pursuits. That said, the effect of reduced humanities studies at traditional universities should also have an effect on human-sensitive education in UoT's, which do not accommodate pure humanities courses.

Students, in general, study for future employment prospects. To me, this decline in student enrolments for humanities programmes speaks of a perceived choice that students are making for better employment opportunities as echoed by Jansen (2009:9). I am questioning how we teach creative practice within the broader design and creative arts disciplines without sensitising the student towards the value systems underpinning humanity. I will also bias the question towards UoTs and will refer to design disciplines related to my specialist field of photography. To prevent any misunderstanding of what I am questioning, I will use as definition the terms human, humane and humanity with reference to "the characteristics of human kind" and not to humanism as described in the Oxford dictionary as "a rationalist outlook or system of thought attaching prime importance to human rather than divine or supernatural matters" (Oxford Dictionary of English 2006:845). The question at hand necessitates a closer look at a description of the humanities, UoTs and their relation to government intent and agenda, higher education and manpower needs in South Africa, as well as some suggestions from literature which could affect positive changes towards educational thinking.

We are aware of an environment that is lacking, in our case a human-centred educational environment, and we are equally aware of the reluctance and stubbornness with which we keep on resisting identified deficiencies that we even acknowledge.
Weikart states that

> most attempts at exalting humanity have ironically resulted in diminishing humanity (Weikart 2008:2).
>
> and
>
> Not all existentialism or postmodernism leads to immoral behaviour, either. However, false conceptions of humanity can lead to destructive behaviour and harmful policies, both by societies and by individuals (Weikart 2008:5).

The need for behaving differently and altering "attitudes and values to cope with complex problems of humanity" (Weikart 2008:5) will have to become a reality for humankind before we destroy ourselves.

The emphasis of these statements brings us back to an apprehension of competent but limited humanity that lacks absolute answers for everything. We can agree that we need to alter the destructive course that humanity has set for itself, not in terms of the technological and scientific choices at our disposal, but rather the underpinning behaviour, attitudes and values to these choices (Van der Merwe 2004:127, Weikart 2008:5) There is therefore a need for an holistic understanding of humanity which will help us to make humanely informed scientific and design and creative decisions which affect and inform every part of the human enterprise.

In South Africa we have experienced a period of change that affected the whole sphere of society, including the home, the workplace, education, the economy, government, technology, entertainment and religion. Amongst the divergent choices were the educational foundations that would determine pathways to new attitudes, behaviour and values, to strengthen the fabric that needs to endure the chafing of society. The post-1994 government prioritised this as one of the pillars that the "new South Africa" could be built upon. Kenneth Stunkel (1989) explains that there can be no social order without a process of standardisation. Although the pre-1994 government adhered to a process of standardisation, the standard chosen was racially and culturally biased and exclusive, with demeaning effects on the rest of South African society, which also happened to be the majority (CHE 2007:1). It is then obvious that the new majority government was biased towards retribution. One can then say that this attitude was not preceded by a process of education but rather underpinned by political justice. Stunken places the educational system at the centre of this stabilisation process and emphasises the positive role that a cohesive humanities agenda plays within this process of stabilisation (Stunkel 1989:329). We are after all human, and the human's inquisitive appetite will largely be satisfied by the formal educational process in his/her formative years (Diffrient, Bardagjy, & Polites 1975:5-6).

Education in South Africa has gone through drastic curriculum reform and restructuring since the early 1990s to the present. Firstly, the apartheid government hastily tried to revamp an educational system that was culturally biased and exclusive in preparation for the inevitable political change that was now unavoidable. This change did not entertain the new government's appetite for change away from the previous educational philosophy (Cross, Mungadi, & Rouhani 2002), and was completely redirected by the White Paper on education and training of 1994. The goals laid out in the White Paper of 1997 became the current benchmark which presented the aim and vision of the current education system and Higher Education Qualification Framework (RSA 1997:9-10) The Freedom Charter which was adopted by the Congress of the People in 1955 commenced the education clause with "The doors of learning and culture shall be open to all". This line remained the educational benchmark for future educational policy (Johnson 1995:131).

However, there seemed to be a fundamental difference of priority between the Education and Training Framework and the reconstruction and development framework of latter times. The former pursued economic goals within an educational framework, while the latter "seeks to use education and training for socio-economic ends" in a Reconstruction and Development Framework (Johnson 1995:133). The fundamental goal of the new South African government, according to Levin (1995:203), was "to create the conditions for high rates of economic growth that can begin to create the wealth needed to satisfy the aspirations of the population". The economics focus for the individual and country was then

interrogated by the notion of post-Fordism in order to establish a framework for developing a new educational system for the furthering, specifically, of science and technology (Lewin 1995:213).

Government initiatives and the evolution of Universities of Technology

The South African government has actively promoted the importance of science and technology amongst our learners from primary and secondary through to higher education over the past few years. This was done to address the current and future manpower imbalances in South Africa. The technikon education sector was essentially established for this purpose (Johnson 1995:183, Radebe 1995:5). The Committee of Technikon Principles (CTP) expanded this mandate and interrogated the notion of a University of Technology, formulating their findings in a document known as *The Philosophy of a University of Technology* (2004). This document spearheaded the petition to parliament towards a name change, from Technikon to University of Technology. Der Heyde (2004:3) asserts that the main reason for change was that the term Technikon "had little or no international currency". Der Heyde (2004:3) warns that higher education should be very wary of introducing new terminologies into higher education unless the strategic advantage is very obvious and guaranteed, and the supposed pedagogic content widely understood.

In 2003, the Minister of Education, Prof Kader Asmal, announced the re-designation of Technikons to Universities of Technology (Du Pré 2009:VII). In 2002 the amalgamation of 36 higher education providers into 21 was announced (De Heyde 2004:3). The first mergers took place in January 2004 (Du Pré 2009:VII).

What is important to understand here is the process that the UoTs, as contributors of manpower needs in South Africa, went through, from the establishment of Colleges for Advanced Technical Education in 1967 (Government initiated), to Technikon status in 1979 (government initiated), degree status granted in 1993 (technikon initiated), re-designation to UoTs in 2003 (technikon initiated), amalgamation of institutions in 2004 (government initiated), establishing the South African Technology Network (SATN) in November 2004 before the amalgamations commenced (technikon initiated) (Du Pré 2009:VI-VIII). The reason for my distinction between government initiation and institution initiation is to highlight the intrinsic motivation for the change at the time. This retrospective view is also necessary to provide a possible context for the current lack of humanities content at Universities of Technology. The curricula at Colleges for Advanced Technical Education (pre-1979) did not include any form of humanities course content, and thus resulted in the lack of humanities orientation at the evolved UoTs. It is evident that there was never a fundamental change of philosophy, but instead just a steady evolvement from one institutional name to another. The notion of the new generation university is becoming an international and national buzzword. Schauffer and Thathiah (2007:2) deconstructed the notion of University of Technology by questioning the "philosophical construction of the University of Technology with the following four different emphases: *South African* University of Technology, South African *University of Technology*, South African *University* of Technology, or South African University of *Technology*. In the same way one can deconstruct the notion of a Comprehensive University or the New Generation University. Hopefully the "strategic advantage" was evident in the genesis of the idea (Der Heyde 2004:3) so that we can open a new chapter in higher education.

It also seems as if the humanities dilemma in not just a UoT phenomenon. Apart from the lack of pure humanities content in the curricula of Universities of Technology, it is reported that there is a major decline in the value of humanities programmes internationally and nationally (CHE 2007:163). The promotion of science and technology, as referred to previously, will have an even more detrimental effect on the prospective learners' perception of the importance of humanities studies. It almost seems as if humanity is trying to direct the attention away from human failure to a technological saviour.

The concern of this paper is not the pursuing of pure humanities studies, but rather the incorporation of humanities content into existing programmes. Van der Merwe (2004:136) highlights the value of the humanities in contrast with the "scientific spirit of mankind" in that it "narrows the gap between facts and values, between things and meanings, between explanation and understanding, between knowledge-as-information and knowledge-as-interpretation". He further states the change at universities has been from "bastions of culture" to "incubators of industrial and technological innovations". If this is the case with universities, where do UoTs stand, already having minimal

humanities focus and content within programmes? The IBM Human Resource Division in Cana, as quoted in van der Merwe (2004:128), states that:

> thinking independently, asking significant questions, analysing and weighing ideas, drawing logical conclusions and putting forth sound arguments, are precisely the skills business and industry are looking for.

It is clear from these citations that the humanities need to occupy a clear, equal position in higher education.

The holistic human-centred education that I was referring to at the beginning of this paper may suggest having a humanities faculty with pure humanities that one would find at a traditional university, as the model to draw from for the UoTs. The advantage of this traditional university model is its proven track record in established learning environments, as well as the pedagogical refinement over the years. However, the "career-focused" education of the UoTs, compared to the "career-oriented" focus of traditional universities diminishes this option. The previous Technikon and now UoT courses were structured with a selection of compulsory major and minor subjects that together added to the focussed career choice. The option for electives currently is minimal, or in most instances, does not existent. The elective system provides a human-friendly opportunity for the students to personalise their education. Attractive as it may seem, Lewin (1995:207) does warn against the notion of "borrowing" instead of research-informed change. The outcomes-based school system was "borrowed" from New Zealand (Cross, Mungadi, & Rouhani 2002:183), and the concept of University of Technology from Australia and the UK (Cooper 1995:245). Although the concept of a UoT was borrowed, one can sense the urgency with which the South Africa Technology Network is promoting a unique South African UoT identity. (See: *The place and role of Universities of Technology in South Africa* (Du Pré 2009)). I do not doubt for one moment that proliferation of humanities faculties will indeed accelerate what van der Merwe (2004:135) refers to as the "tempering of science and technology...with the human element that humanities offer". However, this influx of humane, literate people will only provide a balance in the broader total society. The average will become mere statistical value, which looks good on paper, but denies the opportunity for individual human awareness, in order to become more humane.

At the traditional university the student has two options to engage with humanities content: taking a pure humanities course within the faculty of humanities or taking humanities electives as part of a degree course. Neither of these choices is commonly available at previous Technikons and now Universities of Technology. The specific perspective in this educational discussion is towards photography education at UoTs and more specifically the Vaal University of Technology. It is offered within a creative arts and design environment, under the auspices of the bigger humanities/human sciences umbrella. This career-focused course is maintained within a predetermined but cohesive curriculum. The final suggestion for possible inclusion of humanities content within such a course will be discussed after a context of the course environment is provided.

The photography course at VUT

A reflection on my personal experience might provide a better context for the photography course's specific need for human orientation. However, this does not exclude its relevance to the broader Higher Education landscape and specifically the UoT environment. I will refer to my own experience through a self-reflection of my lecturing career over the past 20 years to further clarify my educational perspective of a Technikon and University of Technology (1989 to 2009).

My academic career

Between 1989 and 1993 I had a clear conception of the Technikon philosophy. The course prepared students for the commercial photography market with staff being in constant contact with the industry on an advisory and assessment level. In 1994 the lecturers and students were all very excited about the prospect of awarding degrees and motivated students to do the new BTech degree. The main motivation for prospective students to studying the degree was status. The new BTech degree provided the opportunity to redefine the National Higher Diploma. Research methodology was added to promote academic correctness in the writing of mini- dissertations at this level.

Diploma		BTech degree		MTech degree	
Subject	**Subject orientation**	**Subject**	**Subject orientation**	**Subject**	**Course orientation**
Visual Communication 3	Aesthetic / critical	Theory of Photogrphy4	Critical	Dissertation	Critical
Applied Photography 3	60% Commercial and 40% Personal exploration	Applied Photography 4	Critical / Commercial	Applied body of work	Personal
		Research methods			

Table 1 Subject progression from diploma to MTech degree

The above Table 1 illustrates the subject linkages from one exit level to the next. Only the relevant subjects (critical theory, commercial application) pertaining to the "human sensitive" focus of this paper are indicated. On completion of the diploma the student then has the opportunity to enter the BTech degree, again an exit level, after which the master's and doctorate programmes can be followed. A strategy was devised to accelerate throughput from National Diploma to MTech and possible DTech level by conceptually linking and cascading learning outcomes in preceding levels, in turn becoming building blocks for the next level. The registered outcomes of the subjects were inclusive enough to effect a smooth transition from the one level to the next. Critical theory such as formal analysis, feminism, media theory, semiotics and phenomenology were introduced in the diploma levels in order to facilitate adequate academic rigour in the BTech degree. The majority of students found the theory content overwhelming and difficult to contextualise within a course philosophy that leaned towards an industry-orientated practical course. This led to some candidates not pursuing an MTech degree.

The BTech and MTech courses are similar in approach. A study leader is appointed who guides the academic process throughout the academic year. The MTech student has a choice between a theory-only submission or a halfway split between a practical and theoretical component.

MTech degree in photography			
Option 1	**Credit**	**Option 2**	**Credit**
Dissertation only	1	Dissertation	0.5
		Applied photography project	0.5

Table 2 MTech options

We realised the potential academic chasm that could develop between us and industry and had no immediate mechanism to remedy this situation. Students started off on a career-focussed programme and progressed through the qualification structure towards a critical theoretical field of enquiry for which they were not suitably prepared.

Personal research

All the lecturers completed their photography qualification at the Technikon or the UoT stage of the institutional evolvement. They became the instruments of change of the new curriculum content within the evolved UoT environment. The lecturers had to read themselves into the new course content that we decided to teach. I taught technical theory applied subjects and Professional Practice. I started my MTech degree with no formal undergraduate human-related subject background. I also did not teach a critical theory component which would have forced me to do some preparatory reading. My study proposed to do a semiotic reading of metaphor in selected personal landscape works and I ended up reading about ontology, epistemology, philosophy, metaphysics, hermeneutics, intentionality, space, etc. I realised that I was on very long journey in completing the qualification. I also recognised my

severe lack of understanding of the self and humanity. The foundational and basic knowledge to understand more about the origins of the relevant discourses related to my studies, made me feel like a first year thrown into a master's course. The academic approach to the study demanded a knowing of self and the other in order to self-reflect in an informed manner upon my work. This would not only satisfy an assessment system but also the self.

Broadening the horizons in the curriculum

Diffrient, Bardagjy, and Polites (1975) propose a unique solution for inclusion of human knowledge into creative education. They refer to an inner process as "another level of being" which is "sometimes more real than the consciously perceived realities". They refer to "access and flow between the conscious and subconscious that turns knowledge to wisdom and talent to genius". At the time of writing their paper in 1975 they referred to the "new forces in design" which had very little to do with a new piece of design technology but rather psychology, sociology, anthropology and human engineering. We are now in 2009. In my 20 years of educational experience I had never been introduced to the knowledge fields listed here.

Diffrient, Bardagjy, and Polites (1975:10) propose what I believe to be a credible answer to the current crisis in UoT education. For example, in urban planning, architecture, interior design and environmental planning they propose a combination of social sciences under the umbrella of environmental psychology that focuses on the built environment. This same approach can be used in other creative disciplines within UoTs. UoTs lack departments that can service specific social sciences and philosophy to the design disciplines.

Traditional Universities seem to have a solution that is imbedded in the educational ethos of the institution, a Humanities faculty, and electives that can provide the necessary human focus in the degree. Not all university programmes utilise this option of including humanities content as an elective. In some cases students can choose not to take a humanities elective. The rationale I am proposing includes human orientation, not as an option, but as an essential component without which the course becomes inhuman, technist and possibly dangerous for human intellectual consumption. The example stated by Diffrient (1975:2) et al. pertains to the built environment and environmental design. Diffrient (1975:10) *et al.* remind us that "the right to a well-designed world is like the right to free speech, justice and livelihood: it is basic".

The Diffrient *et al.* (1975) proposal focuses not on what is available on campus, but rather a critical analysis of what should be included to facilitate proper human interaction and human experience for a better humanity. In the South African HE environment we currently have three differently composed universities, two (comprehensive and traditional) of which already have pure humanities to draw from. The perception might be that the UoTs have no way of remedying the lack of humanity content within the curriculum. I disagree, and will propose a process of curriculum redress next.

Thathiah (2007:87-88, 93) interrogated the ethos of the UoT and emphasises the uniqueness of word technology that fundamentally differentiates UoTs from other universities. He motivates convincingly for the inclusion of a theory subject that contextualises the technological perspective within courses at UoTs. This is a novel solution, merging the ideas of Diffrient (1975) et al. with a South African reality. The challenge lies in realising suggestions, such as the two examples mentioned, into a workable structure for specific disciplines. The overarching umbrella (environmental psychology) under which Diffrient *et al.* (1975:10) grouped psychology, sociology, anthropology and human engineering can also be categorised under the larger scope of critical theory. Together with the notion of a technological slant we are provided with the opportunity to direct the critical theories towards a specific course need, in this case Photography. This critical theory umbrella can also be skewed to specific course focus or according to lecturer strengths, but still maintaining the overarching theme of the broader human orientation within the discipline.

The current course in photography contains a major technical scientific subject that must not be confused with the more philosophically orientated subject suggestion by Thathiah. The following model for photography education at UoTs proposes broad subject orientations and not subject names.

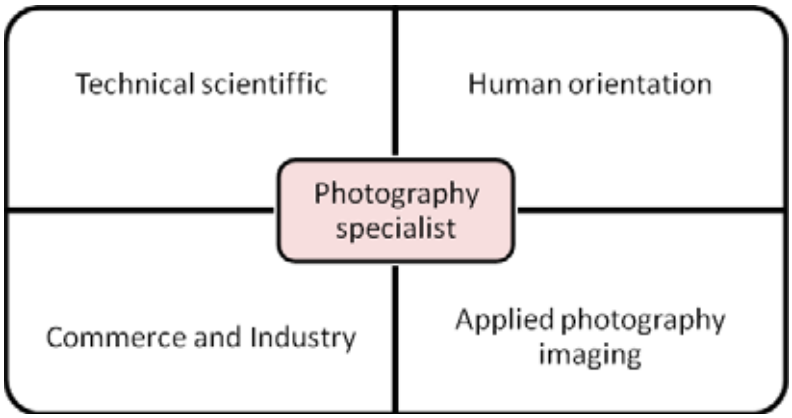

Table 3 Proposed photography course content

The technical scientific subject would cover all technical theoretical content relevant to the image-making process. The Human orientation subject can include a historical context and appropriate critical theory to address visual communication aspects as well as theory of humanity and technology. The Commerce and industry component is self-evident and can cover related business practice for the discipline. Praxis can be aligned with identified industry focus areas that will provide the student with the appropriate aesthetic and technical skills to earn a meaningful living.

In conclusion

Today, it seems that humanity is looking in three metaphorical directions. They are looking at today, regarding their achievements in the shadow of their failures that came at a great human expense. They are looking at *their* "creation", witnessing the destruction of their living space and the humanity they "created" and became. We witness the lack of attempts to solve current specialised manpower shortages in exchange for dehumanising learning environments that are inadequate for a desired future. I am not suggesting "human worship" as referred to by Weikart (2008:2-3), but a different course of action, not away from technology, but appropriating it in a humane learning environment which the current opportunity for change in Higher Education affords us. My self-reflection on my education and career path in higher education is not meant to accuse someone of inadequacy, but rather to highlight the individual's inadequacy to satisfy a fast-paced and intimidating educational beast. This frailness is not because of a technological knowledge gap but rather an unskilled self-reflective human disability to perform for the self and others.

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MAPPING A RELEVANT EDUCATION AND TRAINING FRAMEWORK FOR THE JEWELLERY SECTOR

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Abstract

This paper acknowledges the ongoing process being used in the Jewellery sector to develop an integrated training and development framework. The framework progresses from ABET Level 1 to doctoral qualifications and shows how the various qualifications could link directly to specific occupations within a sector. In doing so, this paper addresses the boundaries between education, training, industry and government. More importantly, it indicates the inclusive process followed to open the gates to enter the new terrain of relevant education and training for sector specific occupations.

The purpose of this paper is to demonstrate how the South African jewellery sector is aligning education and training within the government's educational policy. The aim of the framework is twofold; firstly, to enable the jewellery sector to become globally competitive through a relevant and integrated education framework and secondly, to enable a seamless pathway for education & training and employment from the entry-level worker to high-level occupations and professions.

The various government policy documents are referred to in acknowledging the various frameworks, their problems and the boundaries causing constraints. The presentations and discussion documents from the various Jewellery Industry Training and Career Path Development workshops are the primary source of information regarding the process followed. The paper ends with the project plan to implement the jewellery sector's Career and Training Pathway Framework. However, the process followed may surprise some people in higher education and the workplace and could provide other sectors with an approach to mapping their own pathways.

Key Words: *Jewellery Sector Development; Industry Sector strategy; Workplace relevance, Higher Education Framework, Occupational Framework; Career and Training Pathway Framework.*

Background

As a design practitioner, the author takes a firm position on the need for relevant design education for the workplace. However, as an educator, he also sees design education as the ideal place to discover new knowledge, introduce new competitive technologies and foster future social responsibility issues that are difficult to accomplish from within the workplace. The dilemma is that the workplace's view of education is relatively immediate compared to that of education, who takes a much longer-term view because it takes long to implement new ideas. Therefore, the workplace needs a long-term strategy to guide education and training in fulfilling its needs. This belief is founded on first-hand experience, where the author managed the turn-around of the Jewellery Design & Manufacture Programme at the University of Johannesburg. This was accomplished by involving industry in the introduction of new design and manufacturing technologies in an attempt to drive competitiveness into the jewellery sector. In order to ensure relevance, the author developed an understanding of the Jewellery sector's needs by becoming involved in two of their strategic task groups. The first restructured the *Jewellery Council of South Africa (JCSA),* where the author chaired the *Education Working Group*. In the second, he participated in a series of *Jewellery Industry Training and Career Path Development* workshops held jointly by the *JCSA* and the *Mining Qualifications Authority SETA (MQA).* This resulted in a recommendation to form a permanent *Jewellery Education Forum* to introduce and maintain an education framework linked directly to the sector's occupational framework. This paper therefore bases its discussion on and around these events that are ongoing, but were initiated as far back as 2001.

Introduction

Since 2002, many jewellery industry strategic task groups and workshops discussed the problems between the workplace and education & training. These discussions resulted in a strategic agreement between the MQA and the JCSA in 2008 to launch the *Jewellery Industry Skills Development Project*. A series of inclusive workshops were held with a wide selection of stakeholders from the workplace and education & training. The author presented an adaptation of the *Higher Education Qualifications Framework (HEQF)* for the jewellery sector to initiate discussions. The resulting proposal from these workshops, called the *Jewellery Industry Training and Career Pathway,* is currently being presented to the broader jewellery industry for comment. The author largely bases this paper on this proposal that is a work in progress. The facilitator of these workshops, Mr. Christoph Vorwerk, provided the critical linkages between the NQF and the Occupational Qualifications Framework (OQF), which in itself is also a draft document from the Department of Labour. Other papers presented by Mr. Vorwerk at various conferences are also referred to when dealing with these linkages.

The process followed by the jewellery sector may surprise some people in education and the workplace because there is a general lack of interaction between education and the workplace. The government has acknowledged this by stating, "skills development and training has emerged as one of the key constraints holding back a number of, if not all, sector development. Although the educational and skills development framework are (sic) led by the Department of Education and Department of Labour respectively, and therefore the related interventions falls (sic) under the skills focus group of the Economic Cluster, there is however, a need for greater and stronger integration between industrial and skills policy and implementation, particularly with respect to sector strategies. This is critical in areas such as ensuring that sector and SETA strategies and implementation are better aligned" (South Africa. Department of Trade and Industry, 2007:40).

Thus, the central argument in this paper claims that to implement an effective framework requires meaningful dialogue between the workplace and education to resolve their different perspectives and objectives through an integrated and relevant framework. The main discussion is based on two key documents that help define the constraints of mapping a relevant qualifications framework for the jewellery sector. The first document is the *Joint Policy Statement by the Ministers of Education and Labour* called *"Enhancing the Efficacy and Efficiency of the National Qualifications Framework"*. This informed many of the changes made in the *Higher Education Qualifications Framework; No 928; Gazetted 5 October 2007* and provides a macro view of the government's intentions for higher education.

The second document is the cluster study for the South African jewellery industry more commonly known as the *Kaiser Report*. The document was released in 2001 and sponsored by the *National Economic and Labour Council (Nedlac)* in co-operation with the *Fund for Research into Industrial Development, Growth and Equity (FRIDGE)*. This study aimed to assist the jewellery sector to exploit its full market opportunities by providing recommendations based on detailed external research of domestic and export markets, international benchmarking, competitors, acquisition targets, etc. More importantly, it addresses the contribution of education and training as a support service within an industry strategy to become globally competitive. However, without a review of literature on current debates on educational practice and pedagogic theory, any assertions from these documents cannot be grounded. Hence, the brief inclusion of educational theory that describes how students learn through work experience and discusses the relationship of learning between the workplace and education (Guile & Griffiths, 2001:113).

The National Qualifications Framework

According to South Africa Department of Labour (2007:1-11) the Ministers of Education and Labour issued the joint policy statement that was their first formal statement since 1995 on the implementation of the NQF. This concluded a process initiated in 2001 of assessing how the implementation of the NQF could be improved and where it informed the current HEQF. Before reviewing this statement, it is necessary to understand the formation of the NQF to place it in context: Broadly speaking, it was conceived in the democratic labour movement, with support from business and education. It primarily dealt with the legacies of job reservation and retrogressive & discriminatory training practices in the labour force by creating learning and career pathways. Its intention was to embrace a universal system of quality assured standards and qualifications across all education and training to close skills gaps, improve equity and achieve greater market efficiency & productivity. To achieve this, an

integrated national framework for learning achievements was created. To be successful, it has to contribute to the full personal development of each learner and to the social and economic development of the nation at large (South Africa Department of Labour (2007:1-11).

The previous paragraph encompasses the specific objectives of the NQF, which according to the joint statement, still remain valid. However, after significant stakeholder consultation, the joint statement aims to make the NQF implementation more efficient and responsive to the needs of the nation. Central to this, and in support of this paper's argument, is the need to retain the principle of an integrated approach to education and training. This suggests a holistic view of learning, whereby conceptual and applied knowledge each has value and esteem. Accessing bridges between the classroom and the workplace becomes important, so that students can cross over either way to advance their education and careers. However, an integrated approach must go beyond this by affirming all forms of socially useful learning to redress past inequities. Qualifications registered on the NQF should be designed as a whole and should be fit for purpose. Therefore, both unit standards and whole qualifications are equally significant. In addition, learning modules leading to the exit outcomes of a qualification are relevant in both the workplace and in education. Most importantly, the balance of the various forms of learning is determined by the purpose of the qualification. What differs is the context of the assessment to determine the level of achievement of the outcomes in a training programme or occupational competence in the workplace. Hence, the change to ten NQF levels to allow proper scope for the full range of qualification types, especially for intermediate skills at the post-matriculation and pre-higher education levels (South Africa Department of Labour (2007:1-11).

The changes required of the NQF were to the organisational structures to improve the efficiency and efficacy of its implementation. For it to be effective, the implementation needed to be simple, clear, flexible and trustworthy. However, the author suggests that this is the greatest challenge because bridges imply a separation between the workplace and education, which is a real issue because they have different objectives. Education institutions are accountable through their respective quality councils to the South African Qualifications Authority (SAQA), which is responsible to the Minister of Education. SAQA recognises a large number of occupational and professional bodies who are accredited to determine competence with relevant educational institutions. However, representation of the non-statutory professions, such as *jewellery manufacture*, was not included in the original NQF. Therefore, the joint statement suggests the establishment of Qualification Council for Trades and Occupations (QCTO) will include them. However, the QCTO's are accountable to the Minister of Labour. Regardless, education, labour, professional and occupational bodies should be appropriately represented by expert individuals on the bodies responsible for standards generation and quality assurance. To enable this, educators at different levels and in different areas should be regarded as colleagues rather than competitors (South Africa Department of Labour (2007:1-11).

In summary, the author reasserts that the real issue is how to implement this NQF through meaningful dialogue between stakeholders with different objectives. What is the point of departure? How is a common goal created and achieved?

Theory of Work Experience in Educational Practice

A review of literature on current debates on educational practice and pedagogic theory attempts to address these questions to see if there is a model that can underpin the framework. Guile and Griffiths (2001:113-131) provide the theoretical context of how students learn through work experience. They also provide a model that indicates the relationship of learning that occurs within and between the workplace and education. As a point of departure, the concept of work experience needs to move beyond a very narrow view of the relationship between the workplace and education. It cannot only be seen as an opportunity for students in formal education to enhance their skills and make closer links with the workplace. This is the result of a 'technical-rational' model of education that separates the teaching of knowledge and skills from their practical application. What is required is a model that links work experience, its underlying knowledge and skill and its context. Importantly, it needs to shift work experience as a context that students learn *about*, to one *through which* they can learn and develop. Many models of work experience have evolved ideas about learning and development. However, they do not use work experience through which students can develop because there is limited connectivity between education and the workplace (Guile and Griffiths, 2001:113-117).

Guile and Griffiths (2001:125-128) present a new connective model of work experience that is based on the idea of a 'reflexive' theory of learning. This involves a greater emphasis on the context and organisation of workplace activities upon student learning. Both education and the workplace must appreciate that work experience provides a range of different ways of learning compared with that of formal education. More specifically, work experience must provide students with an opportunity to 'learn to negotiate how they learn' in the workplace because it is critical to their effective workplace performance. To do this, students must be supported to participate in workplace activities and cultures by using appropriate concepts from formal education within the external context of the workplace. However, this is not enough. Students must be encouraged to interrogate the relevance of the workplace activities, resituate the concepts and integrate the new knowledge. Therefore, the idea of work experience needs to change in organisations that provide an environment for learning or participation in learning, as well as in the pedagogic practice of educators. To achieve this, the workplace must be viewed as 'activity systems' within their own divisions of labour, rules and procedures. Thus, the connective model provides a new curriculum framework that takes work in all its forms as the basis for the development of knowledge, skills and identity. This concurs with the holistic view of learning, suggested by the new NQF, whereby conceptual and applied knowledge each has value and esteem. The result will see a lifelong pathway of bridges between education and the workplace so that people can cross over either way to advance their education and careers.

Cluster Study for the Jewellery Sector

The two aims of the cluster study for the SA jewellery industry were to identify opportunities in the industry in terms of foreign exchange and job creation and to develop strategic recommendations for the development of a world-class export capability. The resulting report recommended redesigning all the existing industry structures as its first priority, followed by creating a new support services group that included education. Its final priority was to expand the representation of industry to include a wider participation of stakeholders (Kaiser Associates, 2001:2-89).

In its overview of training and development initiatives, the report identified both the technikon (now referred to as universities of technology) and apprenticeship systems as inefficient from an industry perspective. As a result, training received limited industry support. However, it acknowledged training as crucial to the industry's ability to expand and improve the quality of the product produced as well as to widen the participation of previously disadvantaged groups. Its first recommendation regarding education was to create a dedicated training structure/discussion forum to bring educators and industry together. This would hopefully ensure a fair distribution of resources and adequate, meaningful training. The second recommendation was to expand the technikon curriculum to include more business skills that would reduce the rate of insolvencies and fill a middle management gap in the sector. The third recommendation was to encourage a greater participation of previously disadvantaged individuals in industry whereby their indigenous talent could be developed into a competitive advantage. The technikons were identified as one of the possible providers to widen access into the sector because of the increase in government assistance to tertiary students. The final recommendation was to fill the skills gap caused by the collapsing apprenticeship system with the learnership system that was meant to be a more flexible competency system for more specialised industry needs (Kaiser Associates, 2001:111-120).

Constraints in implementing the recommendations of the Jewellery Cluster Study

In analysing this section, the author notes a close alignment between the recommendations of the jewellery cluster study and the intentions of the NQF in closing the skills gaps, widening access, improving greater equity and achieving greater market efficiency and productivity. However, Vorwerk (2005:4) identifies the disconnect between the labour market needs and the NQF as the challenge in implementing this strategy. The reasons are that the NQF organising fields and SAQA definition of qualifications do not easily link to the labour market. For instance, occupations such as that of a jeweller can cut across *Field 06: Manufacturing, Engineering and Technology, Field 03: Business, Commerce and Management Studies* and *Field 05: Education Training and Development.* Another example often used by industry is what defines a master craftsperson such as master goldsmith and where does the qualification exist on the NQF. This is further constrained by the narrow design and definition of quality assurance bodies and processes that suggests but does not require higher education to collaborate with the relevant statutory or non-statutory bodies. Therefore, some learning processes related to the development of occupational or professional skills are not necessarily

deemed relevant in higher education. This creates a notion that occupational qualifications exist below higher education and therefore are not relevant to them. Yet competence requires a varying combination of theory, skills and the ability to apply both in the workplace. An example of this is a qualified goldsmith with a level 4 NQF qualification cannot technically gain access to do a diploma in jewellery design & manufacture because he/she may not have a qualifying matriculation with exemption. However, he/she can do the job because of workplace experience. This denies the personal development of every learner and the social and economic development of the nation at large. The result is that there is a systemic disconnect between the labour market and the NQF that has to be overcome in developing a unique industry training and development pathway for the jewellery sector (South Africa Department of Education, 2007:1-22).

The jewellery industry training and career pathway

The MQA and JCSA's *Jewellery Industry Skills Development Project* launched in 2008 required a series of workshops attended by a broad section of stakeholders from the workplace and education. Vorwerk (2008:1) identifies the following challenges that were also presented at the beginning of the workshop:

- the worlds of education and industry do not share a common language
- skill needs have not yet been systematically captured nor mapped
- there is no clear progression pathway for jewellery-related occupations
- the nature of skills needs in the jewellery industry may be changing from craft manufacturing to more mechanical manufacturing processes
- quality of learners coming out of parts of the system do not meet industry requirements
- the introduction of the HEQF in 2007 will have an effect on the structure and nature of qualifications in the higher education band
- the new NQF and the revised Skills Development Acts will create a revised space for development

Current situation

The Jewellery Industry Training and Career Path was developed in consultation with a broad section of industry and education stakeholders. Vorwerk (2008:1-2) shows in Figure 1 how they mapped existing qualifications against the 10 NQF levels to determine the vertical progression and horizontal articulation between the various qualifications.

The author expands on Vorwerk's (2008:2) analysis of Figure 1, as there are variances in the focus of each of the three streams. The academic/research stream offers a four-year degree to a doctorate qualification within the realm of fine art. It has a strong emphasis on theory and creative skills in the degree programme. The vocational stream offers a national diploma to a master qualification with a commercial and technological emphasis in the theory and practical skills of the diploma programme. The skills/occupational stream offers qualifications from adult basic education and training (ABET) to legacy trade qualifications with a craft emphasis and minimal formal theory, usually attained by means of skills programmes, learnerships, apprenticeships and recognition of prior learning (RPL). The framework demonstrates that there is minimal possibility of articulation between streams and between ABET Level 4 and unit-standards based jewellery qualifications. There is also no progression beyond NQF Level 4 for the skills/occupational stream. However, there may be an informal articulation based on work experience.

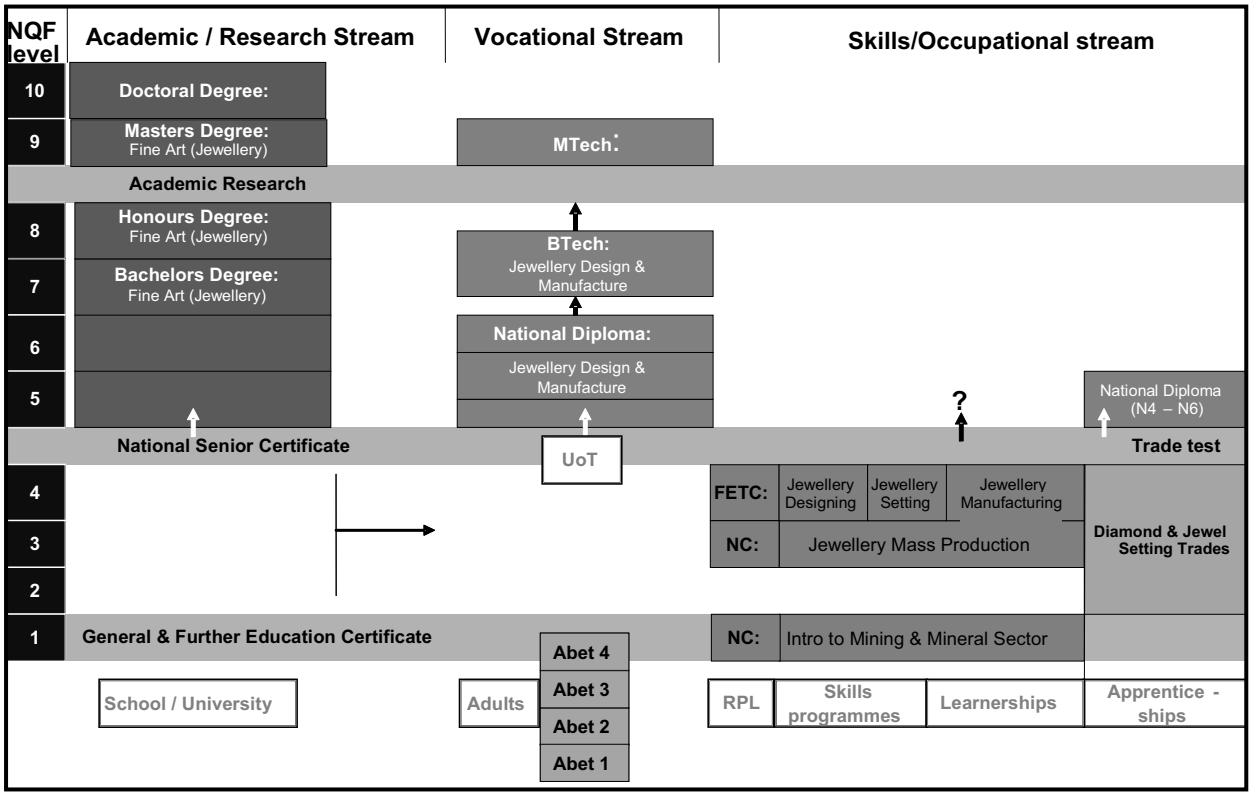

Figure 1: Current Education Framework for the Jewellery Sector. Adapted from Vorwerk (2008:2)

Planned framework

Vorwerk (2008:3) states that an alternative career pathway should create greater flexibility and more options. Therefore, a revised framework (see Figure 2) needs to consider the following new policies and structure and their implications:

- Renamed qualifications and revised criteria for qualifications within the HEQF
- The introduction of a national vocational qualification at Further Education and Training (FET) Colleges, the National Certificate –Vocational (NC)
- Revision of the unit standards-based qualification

The author expands on Vorwerk's (2008:2-5) analysis of Figure 2. The academic/research stream includes an additional three-year bachelor's degree progressing via an honours and masters to a doctorate. The proposed degree is outside the realm of fine art and specifically in design, focussing on designing for mass production using industrial design methodologies.

The vocational stream introduces the NC at FET colleges. This is a whole qualification proposed as an alternative route to the apprenticeship and does not merely replace the previous N-course. It suggests providing fundamental theory and skills that are applicable in the workplace and for access into higher education. However, the HEQF does not stipulate this clearly. Additional research is being conducted to compare the traditional trade qualifications with the unit standards-based ones because there is concern amongst stakeholders that it could create duplication and confusion in the workplace. The vocational stream has also renamed those qualifications currently offered at universities of technology according to the new HEQF criteria. In addition, there is a post-graduate diploma that is useful to articulate across disciplines and to progress to the masters degree from the new and current vocational qualifications.

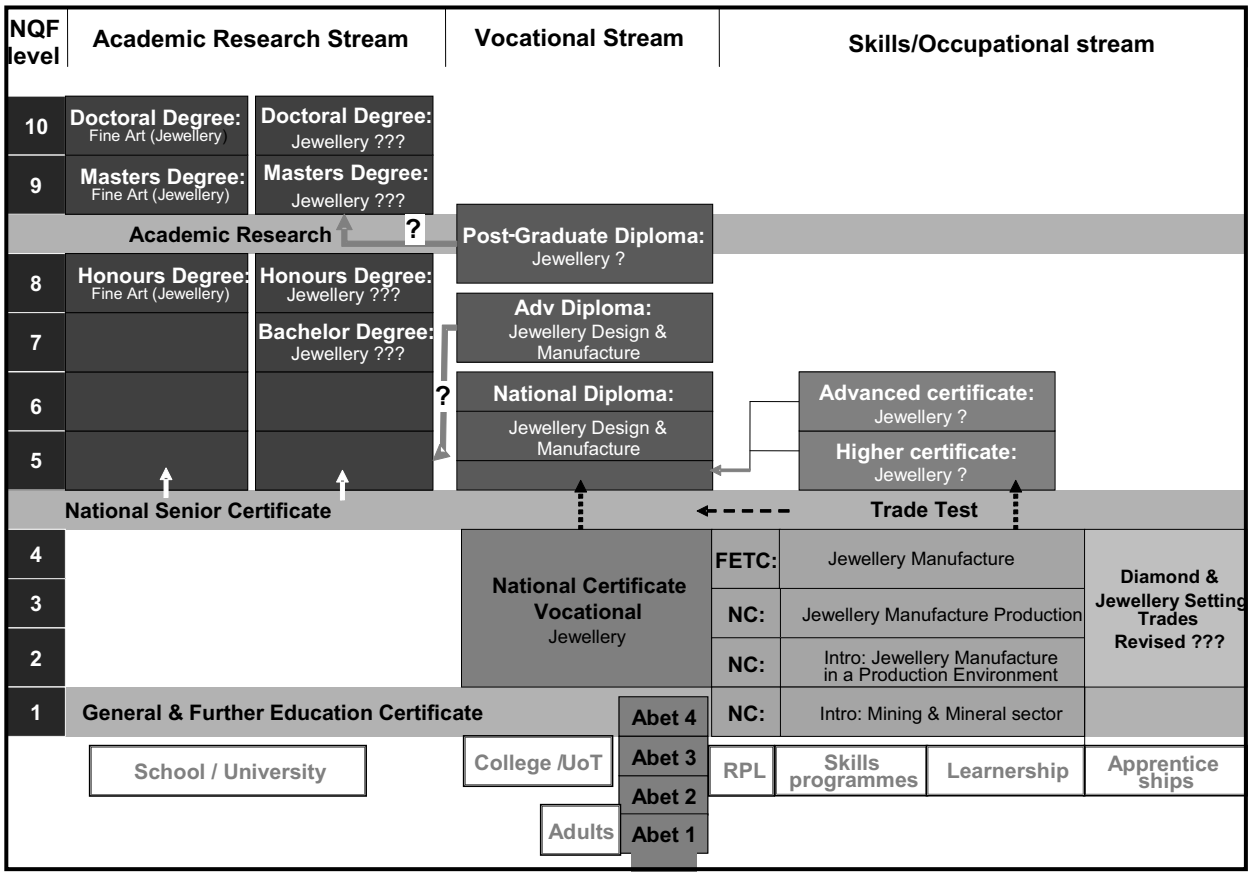

Figure 2: Planned Education Framework for the Jewellery Sector. Adapted from Vorwerk (2008:3)

The skills/occupational stream has redesigned and linked the existing NQF Level 1-4 qualifications to provide a seamless progression. The HEQF also provides new certificate qualifications at NQF levels 5 & 6 that should offer progression from the traditional trade qualifications at NQF level 4. However, the proviso is that the content should come directly from the diploma qualification and be credit bearing to provide access from the skills/occupational stream into the vocational stream (South Africa, Department of Education, 2007:19).

In concluding this section, the planned framework for the jewellery sector is more comprehensive and creates better access and greater progression. There is potential to progress from ABET Level 1 training through multiple routes up to a doctorate. However, many access points at the various NQF levels are not clearly defined in the current policies and will still need clarification by the Departments of Education and Labour. Secondly, without any intended prejudice, people beginning at ABET Level 1 and NQF Level 1 are more likely to stay within the skills/occupational stream because of their skills orientated work experience. Those graduates exiting FET colleges or with moderate matriculation marks have an option to progress in the vocational higher education stream or into the workplace. They are more likely to remain within the stream once they have gained experience in the workplace. This segment has the greatest potential to create future entrepreneurs that can both grow and improve the equity in the jewellery sector. Graduates with high matriculation marks have an opportunity to enter both the vocational and academic/research streams. Those that select an academic/research stream will tend to specialise in design and have a better theoretical underpinning with basic practical manufacturing skills. This will enable them to work in more specialised fields in the industry or remain in education/research. Regardless, this stream has the greatest potential to resolve problems and create new opportunities in the jewellery sector through research. Finally, this planned framework seems comprehensive enough for the personal development of every learner and has the appropriate structures to contribute to the social and economic development of the jewellery sector and the nation at large. However, there is still disconnect between the workplace and education because the transitions or 'the bridges' as discussed in the NQF review are not yet simple and clear.

Proposed approach

Vorwerk (2008:5-7) resolves the disconnection between the workplace and education by engaging with the problem from a workplace perspective rather than an educational one. Fortunately, the Department of Labour established a revised process to developing qualifications for jobs and occupations in terms of an Occupational Qualification Framework (OQF) in preparation for its QCTO. The reason being is that the QCTO's draft policy proposals indicate that the MQA and its constituency being the workplace would benefit because of the following:

- a clear and structured process for identifying skill needs in the industry
- the development of relevant curricula and qualifications that will provide clear guidelines to role players in education, training, and the workplace, as well as those for assessors
- alignment with the new emerging policy direction

Vorwerk (2007:11) states that the intention of the OQF is to be flexible and accommodate qualifications that do not belong to other frameworks. Qualifications from other frameworks that include work-integrated learning and approval by professional bodies will not be affected. However, qualifications from other frameworks that include a work experience component must conform to the QCTO's requirements.

The development of occupational qualifications

Vower (2008:6) indicates a revised approach that considers the outcomes of a learning process by defining what the graduate needs to practise competently in the workplace. This approach changes the nature and scope of the existing qualifications. Qualifications may extend over several NQF levels to deal with all the learning stages required. Therefore, the need to construct steps in the form of 120 credit qualifications for each NQF level falls away. Occupational qualifications are developed by**:**

- analysing the occupational skill sets and identifying the key knowledge, skills and work experience requirements
- developing a curriculum which will provide guidance on:
  - general knowledge and theory subjects
  - practical skills modules
  - work experience modules
- developing qualification assessment specifications to guide the final external assessment, e.g. phase and trade tests
- developing qualifications and unit standards based on the above for registration on the National Learner Record Database

The author notes that the above points are aligned to the new complexity model. However, the design and development process for occupational qualifications, curricula and assessment criteria must be driven by experts from the broader community of practice to ensure they remain relevant and responsive to the changing needs of the industry. This concept is similar to some of the current professional qualifications offered in higher education. Existing qualifications, curricula and training programmes can be analysed to decide on what components are exempted. To do this a common model (see Figure 3) is required to structure the curriculum so that transitions between education and the workplace can be dealt with coherently.

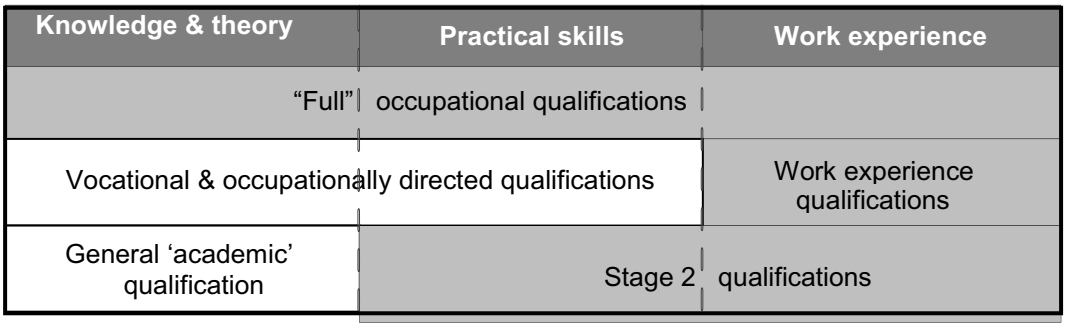

Figure 3: Qualification Competence Model - Adapted from Vorwerk (2008:7)

Vorwerk (2007:11) states that "full" occupational qualifications refer to occupations where all the learning components are offered by the workplace and providers. These would generally be at the

lower levels of the NQF or could be in highly specialised occupations with limited numbers that may not make them economically viable for mainstream education. Vocational and occupationally directed qualifications are generally those where the theory and practical components make it possible for graduates to enter the market. They are generally offered by FET colleges and universities of technology. However, an additional work experience component is required to qualify and practice in the occupation. The general 'academic' qualifications are often professionally inclined, and require a Bachelor of Science, Commerce or Engineering degree. The stage 2 qualifications comprise of specialised modules, work experience (articles, internships, etc.) and a final assessment in order to be recognised as qualified by the relevant professional body.

Mapping skill levels on the National Career Path Framework (NCPF)
Vower's (2005:21) analysis of the NCPF indicates two broad career paths: the first shows increasing levels of knowledge and skill underpinning expert performance in a specialised field of work. The second relates to a broadening span of control or management within an organisation, community, etc. Figure 4 integrates these two career paths within the NQF levels:

<table>
<tr><th></th><th>Descriptor</th><th>Specialisation Career Path</th><th>Management Career Path</th></tr>
<tr><td>10</td><td rowspan="3">High-level occupations and professions</td><td>Research professional</td><td>Strategic management</td></tr>
<tr><td>9</td><td>Professional</td><td rowspan="2">Senior management</td></tr>
<tr><td>8</td><td>Para-professional</td></tr>
<tr><td>7</td><td rowspan="3">Mid-level occupations</td><td>Support professional, technologist, master artisan</td><td rowspan="2">Middle management</td></tr>
<tr><td>6</td><td rowspan="2">Technician, specialised sales, master artisan</td></tr>
<tr><td>5</td><td rowspan="2">Supervisory management</td></tr>
<tr><td>4</td><td rowspan="2">Skilled, administrative and service level occupations and trades</td><td rowspan="2">Trades, technical, clerical, service, assistants, general sales</td></tr>
<tr><td>3</td><td>"Work group" management
Team leader</td></tr>
<tr><td>2</td><td colspan="3">Support level occupations</td></tr>
<tr><td>1</td><td colspan="3">Entry level worker, elementary occupations</td></tr>
</table>

Figure 4: National Career Paths - Adapted from Vorwerk (2005:21)

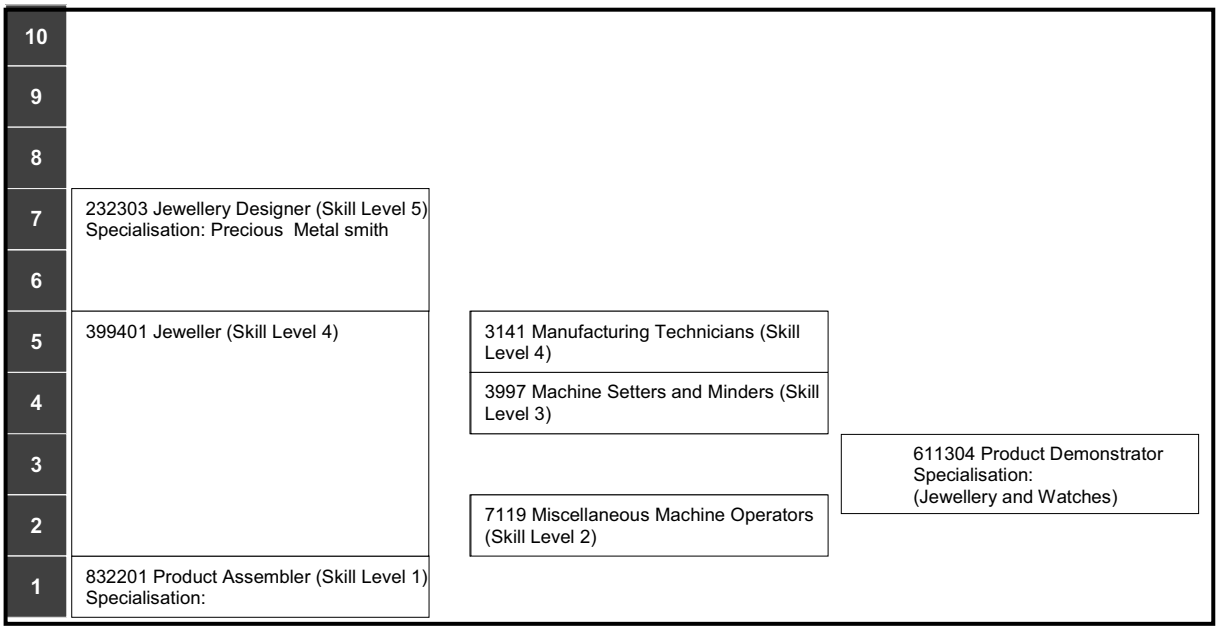

Figure 5: Proposed Qualification Framework for the Jewellery Sector - Adapted from Vorwerk (2008:8)

Figure 5 shows the some current and proposed jewellery occupational qualifications mapped against the NQF levels. This is incomplete; however, the ongoing process will determine what occupational qualifications are required.

Proposed NQF implementation process

Vorwerk (2008:10) describes how to do a phased implementation of this Jewellery Training and Career Pathway. The draft QCTO policies require a registered facilitator to engage with the practice based experts throughout the process. A standards generation board or quality assurance group is established as a reference group. Finally, the proposed occupational qualification is distributed to the broader group of stakeholders for feedback.

Phase:	Activity
Research Phase 1:	Mapping education pathways
Research Phase 2:	Compiling an occupational pathway
Development Phase 1:	Develop occupational profiles and define skills sets
Development Phase 2:	Construct learning pathways and exit level outcomes for qualifications
Development Phase 3:	Define the curriculum by unpacking knowledge, practical skills, work experience and critical cross-field outcomes required to be competent
Development Phase 4:	Develop assessment criteria against the outcomes
Development Phase 5:	Convert into qualifications and unit standards for registration purposes

Figure 6: NQF Implementation Process for the Jewellery Sector - Adapted from Vorwerk (2008:9)

Conclusion

This paper addressed the problems of mapping a relevant educational and training framework for the jewellery sector. The new NQF has always stipulated the need to retain an integrated approach to education and training where formal knowledge and work experience each has value and esteem. Guile and Griffiths (2001:113-117) proposed a new model of education to link work experience with its underlying knowledge and skill and its context. However, the context of work experience must shift from students learning 'about' to one 'through which' students can learn and develop. The model proposes that the workplace is viewed as activity systems, with divisions of labour, rules and

procedures. Students must be supported to participate in workplace activities and cultures by using appropriate concepts from formal knowledge learned. Furthermore, they must interrogate the relevance of these workplace activities, resituate the concepts and integrate the new knowledge. Work experience must provide students with an opportunity to "learn to negotiate how they learn' in the workplace because it is critical to their performance. Thus, the connective model addresses many of the objectives of the new NQF.

The aim of the joint statement by the Ministers of Education & Labour was to make the NQF implementation more efficient and responsive to the needs of the nation, by making it simple, clear, flexible and trustworthy. The process used by the jewellery sector in the *Jewellery Industry Skills Development Project* tested this aim and found that it is efficient and responsive to the sector's needs as far as it was simple and clear to map all the qualifications during the workshops. All stakeholders could understand and engage with the NQF. However, the HEQF is not flexible enough to create an integrated framework because there are too many barriers for vertical progression and horizontal articulation. This is especially so from the FET to HE.

In addition, the NQF was more responsive to the needs of education rather than the integration of education and the workplace. Integration relied extensively on the new draft OQF because it addresses what the graduate needs to practice competently in the workplace. To achieve this it uses a Qualification Competence Model that defines the knowledge and theory, practical skills and work experience required to be competent in the workplace. This determines the most suitable level for the qualification on the NQF and in which stream it most appropriate, i.e. academic, vocational or occupational. Similarly, occupational qualifications can be mapped to a National Career Path that is determined by the level of specialisation or management required at any particular level. The approach of the OQF supports the connectivity theory model because it determines the context for work experience using workplace activities that can support formal learning and allow the student to interrogate the relevance thereof. It is premature to declare this mapping process followed by the jewellery sector as a success because it is work in progress. However, the process required meaningful dialogue between the workplace and education to resolve their different perspectives and objectives in creating an integrated framework. What is evident is that the workplace must be proactive regarding its education and training needs because they need to determine what and how many graduates they require and with what mix of knowledge, skills and experience. Therefore, the workplace must collaborate with education and training rather than seeing them as service providers. However, the main concern of the author is if education, which has a longer-term view than the workplace, can respond to the continually changing knowledge and technology requirements expected by the workplace. Similarly, does the workplace have the capacity to determine its education and training requirements with a longer-term view? The Departments of Education and Labour need to consider the barriers and adapt the NQF policy to create access through the levels. Only then can bridges between the workplace and education be accessed by all people to cross over either way on a path of life long learning.

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Short Biography

Andro Nizetich previously managed the Department of Jewellery & Ceramic Design at the University of Johannesburg and currently lecturers in the Department of Industrial Design. His qualifications include a BTech: Industrial Design and a Masters: Business Administration. He has substantial experience across design disciplines and more recently in design education. Niz, as he is preferably known, has a strong strategic ability and easily traverses the boundaries between disciplines to provide innovative, yet pragmatic solutions in any of his endeavours.

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AN EVALUATION OF INTERPRETED TECHNICAL AND AESTHETICAL DESIGN SUITABILITY IN GARMENTS (AIMED AT A WESTERN MARKET) IN WHICH KALAHARI TUSSAH SILK WAS USED

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Abstract

Silk is a prestigious material, often used to produce textiles and clothing associated with rank, luxury, wealth and social status. In Africa silk is produced and used less extensively than cotton and wool – both geographically and socially. However, silk textile traditions in Africa have been sustained by the continuing demand for prestigious culturally significant clothes.Kalahari tussah silk comes from a silk worm from the Kalahari, a vast region of red sandy soil extending across much of Southern Africa. The wild silk is a naturally occurring renewable resource used by the San, who are the original and oldest inhabitants of South Africa. Small communities are located in a few areas like the Kalahari Desert region, and regions of Namibia (Lewis-Williams, 1991:6-11).

The aim of this project was to develop a range of garments suitable for the Kalahari tussah silk in order to utilize the silk in a sustainable way. The researcher incorporated design elements gleaned from the landscape of Namibia and the San culture in order to reflect aesthetic aspects of the San culture and of the Namibian landscape and to create awareness about the Kalahari tussah silk through the product designs.

The research question was; what are the findings of evaluating the interpreted technical and aesthetical design suitability in garments (aimed at a niche western market) in which Kalahari tussah silk was used?

The researcher used a qualitative research methodology for the study. In order to gain a better understanding of the how to incorporate design elements of the San culture into silk garments, literature concerning African silk, and the San tribes cultural costumes was included in the study. In order to incorporate design elements from the Kalahari a trip to Namibia was carried out in August 2008 and photographs of the landscape were used for inspiration. The researcher used this data to incorporate aesthetic design elements of the Kalahari and San culture into the designs. In order to gain a better understanding of what wild silk is a brief literature study of the properties and of wild silk was included. Experimentation with construction methods for the Kalahari tussah silk was done, and a range of six garments was constructed. The instrument for data collection was a structured face-to-face meeting held with a group of 6 participants using the Nominal Group technique in which the designs were evaluated for interpreted technical and aesthetical design suitability. The research population comprised of experts selected from the retail, design and fashion industry

The creation of the range of Kalahari tussah silk garments inspired by the Kalahari and the San culture could be a way of utilising a naturally renewable resource, of developing methods for the construction of Kalahari tussah silk fabric, and of increasing interest and awareness of Kalahari tussah silk by reflecting aesthetical aspects of the Kalahari landscape and the San Culture through the product designs. Findings indicated that, the range is technical suitable the Kalahari tussah silk fabric, and the designs (as interpreted by a western market) reflect aesthetic aspects of the Kalahari landscape and the San culture.

Key words*: Cultural awareness, Kalahari Tussah Silk, Sustainable resource*

Introduction

Silk is a prestigious material, often used to produce textiles and clothing associated with rank, luxury, wealth and social status. In Africa silk is produced and used less extensively than cotton and wool - both geographically and socially (Spring & Hudson 2002:6). Although its use has been strongly challenged by synthetic fibres it is still one of the important natural fibres of the fashion trade (Segroatt

1975:15). The worldwide demand for silk is increasing but production is decreasing and an opportunity exists for Southern Africa to use technical expertise to develop our own specialist silk industry (ICIPE 2007).

The creation of the range of Kalahari tussah silk garments inspired by the Kalahari and the San culture could be a way of utilising a naturally renewable resource, of developing methods for the construction of Kalahari tussah silk fabric, and of increasing interest and awareness of Kalahari tussah silk by reflecting aesthetical aspects of the Kalahari landscape and the San Culture through the product designs.

Therefore the researchers set out to do product development with the objectives of:

- Creating well constructed, beautifully designed ranges of garments
- Facilitating the utilisation of a natural renewable resource - wild tussah silk
- Incorporating design elements inspired by the Namibian landscape and the San culture into the garments, in order to reflect the beauty of the San culture and Namibian landscape through the product designs
- Collecting data to evaluate the interpreted technical and aesthetical design suitability in garments (aimed at a niche western market) in which Kalahari tussah silk was used.

In order to gain a better understanding of the cultural value of silk in Africa and how to incorporate design elements of the San culture, literature concerning African silk, and the San tribes' use of the wild silk cocoons, as well as the cultural costumes and the colours used by the San and other African cultures was included in the study. In order to incorporate design elements from the Kalahari a trip to Namibia was carried out in August 2008 and photographs of the landscape were used for inspiration. In order to gain a better understanding of what wild silk is a brief literature study of the properties and of wild silk was included. The researcher used this data to incorporate aesthetic design elements of the Kalahari and San culture into the designs. Experimentation with construction methods for the Kalahari tussah silk was done, and a range of six garments was constructed. The instrument for data collection was a structured face-to-face meeting held with a group of 6 participants using the Nominal Group technique in which the designs were evaluated for interpreted technical and aesthetical design suitability. The research population comprised of experts selected from the retail, design and fashion industry

Silk varieties, characteristics and production

Silk

There are many different types of silk; they can be differentiated as cultivated silk and wild silk. Cultivated silk is spun by silkworms that are raised on silk farms, while wild silk is obtained from cocoons of silkworms that grow in a natural uncontrolled environment. Cultivated silk is a beautiful luxurious fibre with a smooth luxurious hand feel. Wild silks are coarser in hand feel and texture (Willbanks 2005: http://www.fabrics.net/amysilk.asp). Silk fabrics have good absorbency. Fabrics made from silk are comfortable in the summer and warm in the winter. Silk fabrics have a moderate resistance to wrinkling. When dyed cultivated silk cloth has a deeper, richer appearance then many other dyed fabrics (Segroatt 1975:15).

Wild silk is a term used for both wild and less cultivated species. The latter includes Indian tussah (from Sanskrit *tasar,* a shuttle), eri and muga (Scott 2001:242). Wild silk is obtained from cocoons of silkworms that grow in a natural uncontrolled environment. The tannin inside the leaves that the silk worm consumes, gives the wild silk a pale brown colour (Scott 2001: 62). The most common type of wild silk is tussah silk (Willbanks 2005: art). Tussah silk is dark in colour, coarse in texture and is difficult to bleach because its natural colour is tan or brown. It is less shiny than cultivated silk (Dingle, et al 2005:9).

Wild Silk in Africa

Some of the earliest written records of indigenous silk production of the *Bombyx Mori* (mulberry cocoon) in Africa come from Tunisia. This variety was also cultivated in Madagascar. Before production started, Chinese silk had been imported by Arab and Indian traders. As well as cultivated production several varieties of wild silk are known in Africa. In the highlands of Madagascar the indigenous *Borocera Madagascariensis* produces a coarse greyish-brown silk that resists dye. It is

esteemed for its durability and used almost exclusively for weaving burial shrouds. The savannah region of northern Nigeria is home to two varieties of wild silk collected from the cocoons of the *Anaphe Infracta* and *anaphe Moloneyi* genus moths, which breed mainly on tamarind trees. The yarn is coarse, greyish-brown and lacking in luster. The *Anaphe Moloneyi* caterpillar produces clusters of whitish cocoons. The light-beige silk yarn is spun directly from these cocoons and is mainly used for embroidery (Spring & Hudson 2002:6-8).

Tradition and change

It is often suggested that many African textile traditions are in imminent danger of disappearing in the face of mechanization, imported goods, changing social structures and modern fashions. However, while it may be true that certain traditions are in decline, others are taking their place just as rapidly. Throughout the continent there is probably more distinctively African cloth being manufactured today than at any other time. The use of silk and the traditions it has inspired have been associated with status and prestige, with the aristocracy and royalty and with ancestors. Silk textile traditions have been sustained by the continuing demand for prestigious culturally significant clothes, such as those worn at marriage in North Africa (Spring & Hudson 2002:19). These glamorous textiles are less exposed to competition from imported goods than more utilitarian textiles. On the other hand, silk weaving traditions in African countries may be more vulnerable to sudden social or political change, as with the disappearance of the *lamba akotofahana in Madagascar*. The *lamba* (generic name for cloth in Madagascar) is worn as a shawl for everyday wear, but the Merina peoples of Central Madagascar also use it as a shroud in which to wrap the dead during burial ceremonies. In the nineteenth century the Merina aristocracy developed a trend for wearing more complex designs, *lamba akotofahana*. This type of cloth was directly linked to a royal and aristocratic hierarchy that was largely dismantled during the colonial period. However in recent years silk weavers in both Tunisia and Madagascar, while continuing to make silk cloths for local people in styles to which they have become accustomed in the post-colonial era, are also experimenting with designs and patterns not used since the nineteenth century (Spring & Hudson 2002:19).

Wild silk industry production in Africa

International demand for wild silk outstrips production by some twelve percent (CRIAASADC 2003:Art). Asian countries are no longer producing enough raw silk to satisfy demand but African farmers could reap the benefits of this market opportunity by supplementing their income with silk production, or sericulture (ICIPE 2007:Art).

Figure 1 Gonometa postica cocoon and Figure 2- Gonometa postica silkworm

Kalahari tussah silk

The wild silk used for this study originates in the Kalahari - a vast region of red sandy soil extending across much of south-central Africa. “Kalahari Tussah silk” comes from a farm situated on the border between Namibia, Botswana and South Africa in the Southern Kalahari between the dry riverbeds of Nossob and Auob rivers. “Kalahari Tussah silk” is wild tussah silk from the *Gonometa Postica* silk worm (Oliver 2007). The Oliver family moved to Namibia in 1995 to raise livestock, and met the *Gonometa postica* when they lost cattle due to consumed cocoons. They learnt that the cocoons are actually wild silk, and started doing research about utilizing the silk. Kalahari Tussah has many of the properties of cultivated silk, but a series of unique problems of *Gonometa* cocoons had to be overcome; an excess of sericin and the spiky hairs protruding from the cocoons posed major obstacles. But after years of testing, production finally started in 2002 (Oliver 2007:Art).

The company ‘Kalahari Tussah’ was established to carry out product development and meet the needs of the community. Through utilization of the Kalahari tussah silk, Kalahari Tussah creates

employment for people and supports scientists in the quest for a better understanding of *Gonometa Postica* (Oliver 2007:Art).

Figure 3- Kalahari tussah silk and Figure 4 -Kalahari tussah silk fabric

Processing and product development

The only way to eradicate the threat posed to livestock agriculture by Gonometa postica is to collect and remove the cocoons from the branches of the Acacia trees. Kalahari Tussah created the opportunity for individuals or groups to work collecting or cleaning cocoons, thus changing a problem into a resource. At a preliminary stage communities are encouraged to collect spent cocoons and sell them to depots. From the depots the cocoons go to a degumming plant where the cocoons are prepared for degumming by hand. This is done by opening the cocoons and removing plant and animal matter from the inside of the cocoons. Cleaned cocoons are then washed, and degummed, yielding pure wild silk. Degummed cocoons are hand carded and sent to various spinners and weavers (Oliver 2007:art).

Kalahari Tussah is used in yarns for fabrics and knitting. Blended with other fine fibres it enhances the texture and appearance with the qualities of silk. Currently Kalahari Tussah is used as a luxury fill for lightweight, anti-allergic duvets. Silk waste is used for fusing and papermaking.

The San people of Namibia

The San are the original and oldest inhabitants of South Africa. While few have managed to reclaim their traditional hunter-gatherer lifestyles, and the ancestral lands from which they were expelled, others are forging new lives as farmers and labourers in South Africa and remote regions in Southern Africa. Thousands of years ago the San were spread over a vast region, from the fertile areas of Southern Africa to the arid regions of Namibia. Due to displacement and subjugation, their numbers have dramatically dwindled, and they are now found only in very small communities in the Kalahari Desert region of the Northern Cape and North West Province in South Africa, and regions of Namibia, Botswana, Zambia and Zimbabwe (Lewis-Williams 1991:6-11).

Dancing costumes

The dancers use various materials to aid them in their representation of the animals. They wear ankle-rattles to emphasise the rhythm of the animals' movements and make theatrical costumes to add another dimension to their performance. They create headdresses of feather to represent birds, and use horns, paint and animal skins to heighten their performances. Dances of animals are included on important occasions (Lewis-Williams 1991:9).

The San are known to be expert dancers. They tie ankle-rattles onto their feet and legs to aid their performances. The cocoons from the *Gnometa Postica (Kalahari tussah silk)* are found on thorn bushes all over Namibia. The San people collect them; remove the larvae in order to place small seeds or tiny pebbles inside. The cocoons are soaked in wet sand or wrapped in a wet cloth. Soft larvae are hooked or scratched out with a sharp object. Seeds or pebbles are pushed in through the opening, which is then pressed closed. The cocoons are left to dry and then threaded using string or thread and a needle or long thorns. Sometimes colourful beads are threaded in between the cocoons (Mans 1997: 6-10).


Figure 5 – Kalahari tussah silk cocoons and Figure 6 – San women wearing traditional clothing

Clothing

The Kalahari San men wear small loincloths. Occasionally sandals are also worn. Women wear skin aprons at the front and rear, and the front one is often decorated with tassels or ostrich eggshell beads. In cold weather skin karosses are worn. They adorn their bodies or clothing with red ochre or charcoal for cosmetic and ritual purposes. Both sexes also smear fat and aromatic buchu powder onto themselves (Steyn 1990:69,73,83).

Rock paintings – colour with symbolic meaning

When Bushmen want to express the elusive, multi-faceted nature of divinity, they turn to the diversity of the animal life around them. They express this in their shamanic dancing and rock paintings. The women clap the rhythm and sing ancient power songs, while the men dance around them. The clapping, singing and dancing is believed to activate a supernatural potency that resided in the shamans themselves. The San chant animal names and compose songs to communicate to the stars and animals, celebrating their co-existence with them. Super-natural power, and the dance that activates it, lie behind the rock paintings and engravings for which the Bushmen are justly famous. The shamans who were also painters took the powerful blood of the eland and mixed it with various pigments, some of which were likewise believed to have potency, and, in a now tranquil state, carefully painted their visions and their power animals on the rock face (Lewis-Williams 1991:6-11).
Different substances were used to create rock art. Reds and browns, based mostly on iron oxides, are dominant colours in South African rock art. Limonite and plant pigments were sources of yellow, white silica, china clay and gypsum, among others, formed the basis of white paints. Charcoal was often used in black paint; while a variety of animal fats were used as binders (Steyn 1990:87). If one looks at the art through this perspective it becomes clear that it is much more than a mere colourful depiction of everyday life, but indeed scenes full of symbolic meaning (Steyn 1990:90).

Colours in cloth

Colours add a dimension to the significance of cloth. For instance in Malagasy (the national language of Madagascar) colour symbolism is subtle; green is associated with mourning, and the term *lamb maitso*, literally ‘green cloth’ is one of the terms used to describe the mourning cloth. Similarly *lamba mena*, ‘red cloth’ is a term used to describe the shrouds used for burying the dead, though 'red' indicates its symbolic association with the ancestors, rather than the actual colour of the cloth. The colour red has been associated for centuries with royalty (who among the Merina were thought to be immortal), vitality and mystical power. Similarly *Rida ; ahmar* is the most prestigious of the silk textiles in Mahdia, Tunisia. The name literally translates as ‘red shawl. In the 19th century white had been a colour associated with subordinate people, commoners and slaves, but in the post- colonial period the wearing of white silk *lamba* has become a mark of prestige and status (Spring & Hudson 2002:19).
Similarly the red ochre or charcoal that the San use to adorn their bodies and clothing are for ritual purposes, the colours used in the San rock art reflect their symbolic meaning, and the tawny colour of Kalahari tussah silk reflects the earthy tones of the beautiful arid Namibia that is inhabited by the San.

Methodology

Qualitative Research was used in this study, because it is used to answer questions of a complex nature and of phenomena with the purpose of describing, understanding, exploring and interpreting phenomena from a particular point of view (Leedy & Ormrod 2005). Exploratory research was used, because it focuses on exploring areas that have unanswered questions, and involved observation, and documentation of every step of the way to ensure no step of the unfolding of new knowledge is missed (Munro 2004:19). The instrument for collection of data was the Nominal Group Technique (NGT). The purpose of the NGT is to generate information in response to an issue that can then be prioritised through group discussion. Specific questions were addressed in depth among a sample population (Potter, Gordon & Hamer 2004). The format of the research was loosely structured and consisted of non-standardized observations and interviews, search themes and categories, acknowledgements and analysis, words, narratives and quotes. This way of reporting the data was chosen because it is an effective way of communicating when using qualitative research (Leedy & Ormrod 2005). Experimentation with construction methods was carried out to determine which methods would be most effective for the hand woven Kalahari Tussah silk.

Target population and sampling

The population were experts selected from the retail, design and fashion industry. Quota sampling was used because it enabled the researcher to choose people with characteristics needed for the research. Six participants were used in a highly structured face-to-face meeting that lasted two hours (Potter, Gordon & Hamer 2004). These participants consisted of a textile specialist, a fashion designer, the supplier of the wild tussah silk, an architect, a fine artist, and a financial expert. The nominal group was held in order to provide critical feedback concerning the designs and range development.

Data analysis and interpretation

The constant comparative method of coding and pattern seeking was used to interpret data. This method was chosen in order to ensure that the range that was developed would visually communicate the right message, would be aesthetically pleasing, and would be marketable to the select niche of customers that frequent the boutiques in which the products may be stocked (Leedy & Ormrod 2005).

Trustworthiness of the research

The researcher talked little, and listened a lot during interviews and while asking questions. Recording observations accurately, keeping up to date with reflections and records, recording them fully, in a candid way. To ensure the validity of the research, the correct criteria were selected, the extent to which the research instruments measure what they what they are supposed to was checked. To enhance the reliability of the research or extent that the research instruments yield consistent results when a similar characteristic is measured, standardization of processes was implemented (Salkind 2003: 107-120). Triangulation was used, by comparing a variety of data sources and different methods from one another in order to crosscheck data and finally primary data was used from credible sources. To ensure the transferability and confirmability of the research, thick adequate descriptions were given to ensure no misunderstandings were possible, and feedback was received from experts in the field (Guba 1981:75-91).

The research took the following Ethical issues into account:

- Protection from harm- no undue physical /psychological harm to any persons participating or effected by the research was caused
- Informed consent- Participating in the study was strictly voluntary
- Right to privacy- The research respected the right of privacy that each person has.
- Honesty with professional colleagues- no fabrication of facts and plagiarism was committed (Salkind 2003:118-120).

In terms of philosophical issues of exploitation the researcher did not intend to steal ideas and styles from the San culture when creating the range, but appreciated, reinterpreted and drew inspiration from the San culture (Munro 2004:22).

Limitation of the research

Due to the qualitative nature of the research findings they are susceptible to some degrees of bias, with an interpretative perspective of the complexities involved in the topic being almost inescapably related to ones subjective point of view. This researcher did not carry out further research of the San

culture; but utilised research that was already performed, and the scope of the range development was limited to items of clothing.

Research findings

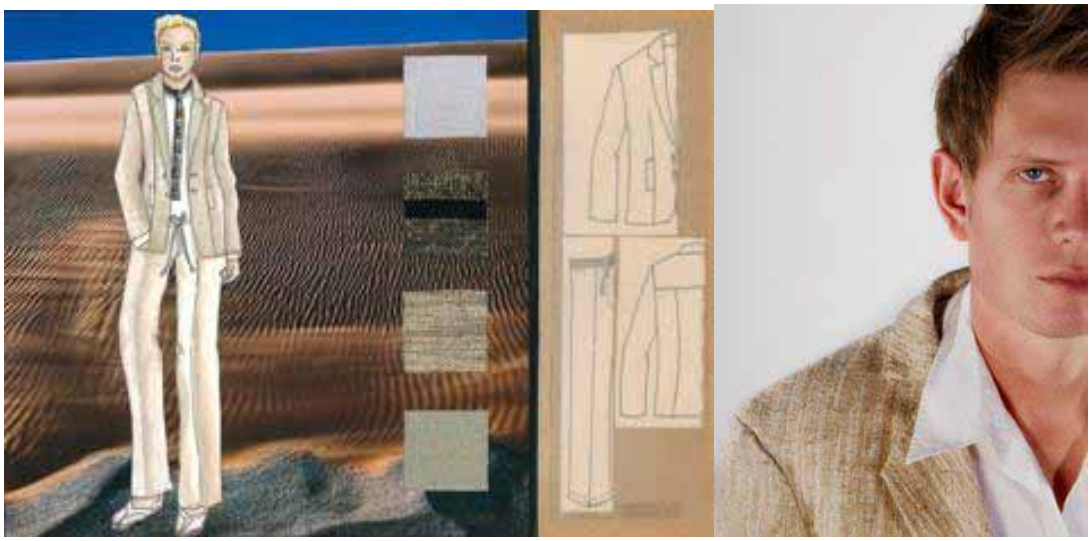
Figures 7 and 8 – Kalahari tussah silk and cotton design and wrap dress

Figures 9 and 10 – Kalahari tussah silk and wool design and jacket and trousers

Figures 11 and 12 – Kalahari tussah silk and bamboo design and wrap dress

Figures 13 and 14- Kalahari tussah silk and bamboo design and dress with jacket

Figures 15, 16 and 17- Kalahari bushman, Kalahari tussah silk and Indian silk design skirt with corset



Figures 18 & 19- Kalahari tussah silk and cotton men's design and suit

During the nominal group the following interesting findings were determined when specific questions were directed at the sample group population.

Question 1 – Design Elements

Write down your feelings, knowledge, and observations regarding the outcome of the *design elements* of the range of garments presented.

- Finding indicated that the designs suit the properties of the wild tussah silk
- The various textures and colours of the garments complement each other
- The designs are suitable for all body types and have interesting and elegant lines
- The designs reflect the Namibian landscape and aesthetical elements of the San culture
- The range is aesthetically suitable for a niche market

These findings indicated that the design elements of the garments did reflect the Namibian landscape and elements of the San culture. In figure 7 and 8 the garment is an asymmetrical wrap similar to the skins the San women tie around themselves. The front of the garment is beaded with handmade clay beads similar to the San use of beading on the front of their aprons. The red ochre colour and the patterns used on the dress are similar to the shapes and colours of the Kalahari desert dunes and the colour of the paint that the San use to adorn themselves. In Figure 9 & 10 the colours used are similar to those of the Kalahari landscape and the leather skins that the San use. Felted wool was used for embellishment in the abstract shape of a quiver tree. In Figure 11 & 12 the sand and cream colours are similar to the desert landscape. The shape of the shawl is similar to a kaross used by the San and the white mud beads used to embellish the garment are similar to the ostrich eggshell beads. Ostrich feathers, which the san used for fans, were also incorporated into the belt. Asymmetrical seamless wraps are similar to the leather skins used by the San. In figure 13 & 14 the appliquéd patterns on the dress are similar to dried mud cracks in the Kalahari. The simple seamless design of the dress and the charcoal colour of the silk are similar to the charcoal colours of the paint that the San use to adorn themselves and to the colours in the landscape of the Kalahari. The jacket represents a kaross. In figure 18 & 19 the sand colour of the suit is similar to the colour of sand dunes in Namibia. The wood buttons used are similar to the natural wood and seed embellishments used by the San. The design has simple lines and the pants are comfortable and casual. In figure 15, 16 & 12 the silhouette of the skirt is similar to the silhouette of the quiver trees found in the Kalahari, and to the silhouette of a San man with dreadlocked hair. The ruffles at the top of the corset represent the leaves of a quiver tree. The layered skirt is similar to the layers of the skins the San women wear. The textures of the silk represent the textures of the quiver tree bark.

Most of the participants voted that the garments are suited to the properties of the Kalahari tussah silk fabric and that the colours, textures and designs complement each other. That the garments are aesthetically suitable for a niche market, have interesting, elegant lines and suit all figure types.

Question 2 - Construction

Write down your feelings, knowledge, and observations regarding the outcome of the *construction* of the range of garments presented.

- Findings indicated that the construction methods used are applicable for the Kalahari tussah silk fabric
- The garments should be constructed for more than one size by using bias cuts or wraps
- Construction takes into account the nature of the woven fabric
- All materials should be fused with interfacing to help reinforce construction
- Specialised construction is for a niche' market, not for mass production

In terms of the construction of the range of garments, most participants indicated that the garments and accessories are constructed specifically for the Kalahari tussah silk. Participants found the construction methods used as applicable for the Kalahari tussah silk fabric, and that the garments do take into account the nature of the woven fabric. They also indicated that the garments are designed specifically for the Kalahari tussah silk.

Most of the garments in the range are designed without side seams and are cut on the bias to prevent the hand woven silk from fraying and to cater for different sizes. They stated that all materials should be fused with interfacing to help reinforce construction, due to the specialised construction processes the garments are for a niche' market. All the garments were fused with interfacing for reinforcement.

Question 3 – Physical Characteristics

Write down your feelings, knowledge, and observations regarding the outcome of the *physical characteristics* of the range of garments presented.

- Findings indicated that unique, unusual weaves complement the silk
- Wear and tear of garments, and friction distorting certain areas should be considered
- Label instructions must be suitable and informative
- The textured silk is well contrasted with silk chiffon

In terms of the physical characteristics of the range of garments presented, most participants found that unique, unusual weaves complement the silk and that the wear and tear of garments, and friction distorting certain areas should be considered. Also label instructions should be suitable and informative, and that textured silk is well contrasted with the silk chiffon used in the range. Based on the findings elicited from the participants of the Nominal group the following conclusions were made.

Conclusions and recommendations

In terms of findings regarding the construction, design elements and physical properties of the silk the following was concluded:

- The garment designs are suitable for all body types and therefore can be marketed to customers with all body types.
- Garments should be marketed to a niche market because they were found to be aesthetically suitable and specialised construction was found to be unsuitable for mass production.
- It is recommended that more unique and unusual weaves are used in constructing the silk fabric, because it was found that these types of weaves complement the silk.
- All materials must be fused to reinforce construction of the Wild Tussah silk fabric.
- Label instructions must be informative in order to educate potential customers about the silk.
- Chiffon and other contrasting fabric complement the silk when incorporated with it.
- The garment designs can be used specifically for Wild Tussah Silk Fabrics because it was found that they suit the properties of the Wild Tussah Silk.
- The construction methods were technically suitable because the construction methods were found to be appropriate for the wild tussah silk
- It was found that the designs do reflect the Namibian landscape and aesthetical aspects of the San culture.

It is recommended that the research findings are taken into account when considering the design elements, construction, and physical characteristics of future product ranges. There is a broad scope for further studies that could be undertaken;

- The evaluation of the benefits that the Kalahari tussah silk could provide for the community and potential customers.
- How the construction of the silk fabric can be improved to complement garment development and construction
- Dye processes and colours specifically for the Kalahari tussah silk
- How people perceive the Kalahari tussah silk and other organic, naturally sustainable fibres.

To conclude, the range of products developed for the Kalahari tussah silk products was successful in achieving the main aims of; creating aesthetically and technically suitable designs (for the western market) while reflecting design elements of the Namibian landscape and the San culture.

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Short Biography

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OPEN-MINDED BY DESIGN: THE BENEFITS OF MULTIDISCIPLINARY INFLUENCES ON DESIGN EDUCATION AND PRACTICE

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Abstract

Utilising Foucaldian theory, this paper is intended to demonstrate why graphic design education should encompass an interrelated set of multidisciplinary experiences, and exposure to the widest possible range of "other fields". These fields include, but are not limited to: Mathematics, Statistics, Physics, Chemistry, Economics, Media Studies, Philosophy, Literary Criticism, Sociology and History. The practice of graphic design is interdisciplinary in nature and the curricular requirements of design programmes should reflect this reality. The research indicates that Graphic Design – in the form of Information Graphics – is a powerful tool for the avoidance or dismantling of many of the obstructions, exclusions and rules of discourse as outlined by Foucault in The Discourse on Language. Using this theoretical basis, graphic design is seen not as a discipline but rather a means of dismantling prohibitive structures within and around discourses and disciplines. This function assists in democratising information and knowledge, facilitating effective communication with larger and previously excluded audiences. Using a qualitative approach, samples demonstrating this communicative action will be discussed and related to theories of McLuhan, Mill, Kant and Frascara, among others.

Keywords: *Multidisciplinary, Prohibitive, Information Graphics, Statistics, Mathematics, Media Ethics, Foucault, Discourse, control, discipline*

What do designers do, and why?

"To some extent we are all helping draft a reductive and immeasurably harmful code of public discourse" (Various 1999). "I see the relation between design and the social sciences as one that will increase the ability of design to deliver efficiency. But I see the need to use that efficiency so that we can increase … our time to reflect about our human condition, our time to interact with others we love, and our time to introduce more significance, enjoyment and consciousness in our daily actions." (Frascara 2002a: 33-39).

The complex nature of post-structural thinking illustrates that design is a discourse in that it comprises an ever more elaborate, interrelated set of elements, principles and abstract concepts, but also forms part of other discourses and is recognized as playing a massively influential role in contemporary media and culture. The complex nature of society, economies and our environment requires insightful and complex thinking. This type of thinking demands a wide array of information and knowledge, much of which is inaccessible to most designers who are taught design and art related subjects and sometimes basic business skills. They are not usually exposed to formal training in the critical humanities or many of the other fields that shape our lives and affect us daily.

The role of design is contested within the design community, with many claiming it is merely a function of business and some arguing that is has other more important and widely interpreted roles to play. Some of these roles include education, social agitation, transgression (usually in the form of counter-discursive activities undermining commercially motivated messages) and other socially beneficial activities.

The four primary categories of graphic design are Persuasive, Directional, Enhansive and Informational. These four impact in various ways on the methods, approaches, functions and structures of design texts. They are certainly not exclusive as the four often complement one another and work together in design texts. A common example would include adverts, predominantly intended

as persuasive design, which feature enhansive and informational elements. Informational design will often also often be persuasive to some extent, and utilise the enhansive function of design aesthetics. According to Edward Tufte Information Graphics consists of "complex ideas communicated with clarity, precision and efficiency" (Tufte 2001). Creating Informational Graphics is "about how to communicate information through the simultaneous presentation of words, numbers and pictures." He goes further to state, with evidence to demonstrate this, that the "design of statistical graphics is a universal matter – like mathematics – and is not tied to the unique factors of a particular language." Contemporary examples of this, discussed later in this text, will show how effective and universal this form of design often is.

Persuasive design however includes the role most often associated publicly with the term graphic design, that of marketing, which includes advertising. The perception that design is advertising is commonly held and requires some significant public education and counter-discursive activity in order to be abolished. Steven Heller states, correctly, that in effect "if advertising is the function, then graphic design is the form" (Heller 1995: 32). In other words, marketing, particularly as advertising, has become what Lacan would refer to as the "Master discourse" of design (Lacan 1970). Advertising, a function of marketing which drives capitalist consumerism, is served by designers, turning them into discursive agents of the master discourse.

Foucault's order of discourse as applied to graphic design

The production of discourse requires that certain rules and mechanisms of control are applied and adhered to (Foucault 1972). This system of production produces knowledge which is frequently inaccessible to "non-experts" and anyone not trained in the acquisition and reading of specific content belonging to a particular discipline. The implications of this are significant, in both the positive and negative sense. Certain of these rules and mechanisms cannot however, stand against the assault of graphic design, when applied effectively, to the task of communication. By this I refer to the ability of design to operate both discursively, and counter-discursively, to extend the 'horizon of expectation' (Jauss 1967) of the 'reader'. Information Graphics, the visual, and usually also textual, presentation of various types of information, is to date the most open and widely understandable means of communicating many aspects of complex data and knowledge. The ubiquitous graph, pie chart or schematic diagram all lend credence to this and are all frequently employed within businesses and a variety of other organisations. Edward Tufte and many other researchers and theorists have demonstrated that effective use of visuals makes the communication of information more effective than merely presenting said information in textual form. In the hands of skilful and talented designers, intelligently executed information graphics embody the power with which knowledge is inherently and latently invested. This power can be perverted, redirected, reduced or even stripped, but it can also be magnified, expanding its reach beyond even the wildest dreams of those who began creating it.

Prohibition prohibited

As stated in *the Discourse of Language*, there are three primary "rules of exclusion" (Foucault 1972: 216). The first of these rules, referred to as "Prohibition," encompasses, in the most brutally simplistic terms, the prohibiting of certain topics, contexts or speakers. This concept of prohibition cannot always be applied to graphic designers however, as the preventing of previously excluded individuals from speaking on particular subjects is rendered null and void by the designer's relative anonymity and their 'absence' from the text. There will always be instances where designers operate within restricted, discursive contexts, but they are generally able to slip unnoticed into the discourse and, using the tools at their disposal, present the viewpoints of experts, with subtle and sometimes highly obvious additions included. As the designer of a graph, poster or some similar piece of work is not considered the 'author' (the person or organisation who first stated, wrote or compiled the text) they cannot be prohibited from adding their 'voice' to it. The vast majority of society neither knows nor cares who designed a piece of communication, they care only about what is said, who is speaking, what it looks like and how they have interpreted it. The designer has merely 'visually arranged the information in order to 'speak through' the design. The designer need only have access to data and knowledge of the design process, allowing 'their' work to speak with an authority based on its information and presentation, and not the reputation of the designer as an individual. While designers are traditionally prohibited (as speaking individuals), as much as any other non-expert, they partially evade the prohibitive nature of discourse by contributing in a novel and powerful way to the message of the text, but do not determine the meaning of that message. Design, and by default designers, conceal their

true power by masquerading as mere decorators, while simultaneously exposing the content of the text, in simple and often ingenious terms. This ingenuity is most effectively displayed in cleverly conceptualised designs, meaning that the designer is indeed contributing intellectually to the communication process.

Overcoming control and delimitation as internal systems of discourse

"Control and Delimitation" (Foucault 1972: 220), the next aspect of structuring discourse, is undermined by information graphics through various means. Firstly, the act of "commentary" is opened to any designer who is able to present or even interpret, either through their own knowledge or that of an 'expert', the information at hand, and then as a result, to anyone able to read the visual message. The visual message is frequently available to and understood by a far wider audience than that of the original text. Commentary can then be delivered by the expanded audience, in many forms, including the use of public spaces, either digital/electronic or physical, and then distributed for further consumption, comment and discussion. Where previously a select group of experts would have been able to generate knowledge, through design anyone with access to the Internet or any other participatory media can contribute.

The paradoxical nature of commentary is that it "permits us to create new discourses ad infinitum" and simultaneously "commentary's only role is to say finally, what has silently been articulated deep down" (Foucault 1972: 221). The commentary is of little or no value if it adds no new insight, fresh perspective or contemporary contextualization. But it cannot say anything that is fundamentally different from the 'primary' text. This paradox is clearly illustrated by the very act of designing information graphics. The graphics are able to "say finally, what has silently been articulated deep down" (Foucault 1972: 221) as well as to add rich and diverse layers of meaning to the text. While this may seem a simplification of what Foucault was referring to, it becomes apparent when examining examples of this form of design work that many complex ideas and notions can be revealed, fairly explicitly, through design. A table, breaking down and separating (visually) the various aspects of a philosophical text, can be a highly efficient means of arranging the thoughts of both writer and reader. This renders the text more 'open' but also allows for almost instant cross-pollination of ideas, moving the words from a linear construct to a more holistic view. While experts within the field may be accustomed to performing this task in an abstract manner, visual presentations speed the process for those who are less accustomed to the complexities and structure of abstract, philosophical or other 'sophisticated' forms of reasoning. It is likely though that even the experts would benefit greatly from this technique at times.

The second aspect of control and delimitation is that of the author as 'unifying principle' (Foucault 1972: 221), which is a complex notion in the case of graphic design. One description which may clarify this is the substitution of the word 'auteur', a term frequently used in the field of cinema. Michael Rock points out that "If the ways a designer can be author are complex and confused, the way designers have used the term and the value ascribed to it are equally so" (Rock 2002: 237-244).

The Film Director, and in the design environment, Art Director, plays the role of Auteur if the criteria for film auteurship are applied to design. These criteria require the Director to display technical expertise, a signature style and a consistent vision and interior meaning. It is the third criterion that prevents many designers from being called Auteurs as most of their work will not be allowed by the clients to contain an interior meaning other than what was commissioned. It would therefore seem that Film Auteur theory, flawed though it has been shown to be, is in some ways appropriate in defining the design Auteur and excluding the work of many 'lesser' designers.

Through information graphics a designer is able to become a 'critical locus', a point in the discourse around which many may congregate to read and discuss the text at hand in a new way. It must be noted that the concept of authorship within discourse is complex and by no means merely a simple reference to a person who writes (although this meaning can sometimes apply). Foucault also treats authorship ambivalently, making the application of this notion a tricky exercise. Far from merely commenting, the designer at once is able to present the message of the writer of the text as well as become a critic, through the 'writing' and presentation of the visual text. The 'original' author is included as a reference point in order to validate the text. This validating person or organisation is recognised as the source of the information and the originator of the research or concept, but the designer, as auteur, facilitates the information graphic becoming a means of communicating

effectively. Certain film directors are referred to as 'Auteurs' because their films, taken as a whole, represent an 'oeuvre'.

Graphic Design is essentially a restructuring, retelling in a form more ancient and visceral, of a text. Using technology, new methods and media, this art of showing and experiencing is updated, refreshed and made novel, often appealing to the widest possible audience. While designers do contribute significantly to the communicational process, and are solely responsible for the visual execution of the piece, they are not embedded in the text. Even in cases where a designer imparts a highly personal or idiosyncratic visual style or interpretation of the data, the author is still not present in an absolute sense (Barthes 1992), as demonstrated in 'The Death of the Author'. There remains the opportunity for new perspectives as well as novel and innovative interpretations to be added by readers.

Avoiding discipline

The third of the internal systems of control and delimitation is that of 'disciplines'. As opposed to commentary and authorship, disciplines (Foucault 1972: 223) concern "that which is required for the construction of new statements". Design, particularly as it is currently evolving, and even more specifically as information graphics, is not truly a discipline. That is to say that while it is considered a 'field', career choice and practice, it necessarily integrates many divergent disciplines and is so widely divergent in content, methodology and application that it cannot be pigeonholed into the concept of being just a discipline.

The practice of graphic design is highly interdisciplinary in nature as it encompasses an interrelated set of multidisciplinary experiences and exposure to a wide range of "other fields". These fields include, but cannot be limited to: Advertising, Marketing and Public Relations for a great variety of business and other organisations. The addition however, by some designers, of a more wide ranging set of disciplines such as Mathematics, Statistics, Physics, Chemistry, Economics, Media Studies, Philosophy, Literary Criticism, Sociology and History, creates the potential for truly effective communication. Flusser describes design as being, amongst other things, a "site where art and technology… come together as equals, making new forms of culture possible" (Flusser 2009: 36-39).

A graphic designer is typically expected to assist companies wishing to sell products and services to specified target audiences. The very use of the combative term "target" suggesting that communication is of less importance than aggressive persuasion, this despite the notion that designers are 'visual communicators'. It is this aggressive and seemingly all-consuming function of selling, persuading and cajoling that mass audiences and designers alike have become accustomed to when describing graphic design. Often media is simply misinterpreted as a means of selling and entertainment and design as a function of advertising or marketing.

The virus within

A useful analogy in understanding discourse is the notion of it being virus-like. Viral marketing, the practice of disseminating a message to a mass audience by using them as carriers of the message, has become an integral part of advertising in the 21st century. A funny advert or weird video arrives in your 'mailbox', sent by a friend or family member, you have been exposed to the virus, its message, distributed at no cost to the company, has infected you, its new 'host'. Pressing the 'forward' button you pass on the infection, adding to the exponential spread of the virus. Facebook, Twitter, Myspace, Gmail and a host of other social networking projects proliferate in this viral manner. In drawing us into virtual communities of fellow infected carriers they mutate, spawning new and more potent forms of themselves. The smaller 'groups' and 'communities' within these social networking sites and blogs are simply modified versions of the primary virus, providing more opportunity to spread by attracting new hosts.

Richard Dawkins (1976) describes the concept of a Meme as being 'a unit of cultural transmission, or a unit of imitation' and later describes memes as 'viruses of the mind'. Songs, advertising slogans, images, brands and fashion trends are all examples of memes. Memes are non-biological viruses, cultural connections that become rapidly self-reinforcing agents of information transmission. Dawkins points out that a successful mind virus is hard to detect, and even harder to undermine. His claim that 'Once the proposition is believed, it automatically undermines opposition to itself' (Dawkins 1976) corresponds to some extent with Foucault's notions of discourse. Mythological, religious, and later,

political memes contributed to the dominant discourses of many cultures. In the contemporary age, economic memes are particularly potent as they are so deeply entrenched in societies that they have become accepted as a natural part of us, spreading their influence daily, reinforcing their validity and resisting most attempts at 'disinfection'. Only once major banks began to collapse in 2008 did it occur to the average citizen that the financial structures upon which they had built their hopes and dreams for early (or even timely) retirement were not only unstable but were deeply flawed. Even after these events, it seems that the majority of those affected still prefer to look to the same discourse of free market consumer economics to rescue them from the very disasters it had facilitated.

The criticism of many instances of recent information graphics being 'faux science' is typical of the binary, limited perspective of most designers (Helfand and Drenttel 2006: 202-206). Were all design to be either commercial or alternately 'activist' or 'scientific' in nature there would be no room for experimentation, discovery and exploration. Designers trained in mathematics can explore the possibilities this brings to the realm of visual creation. The open source computer application 'Processing' allows mathematical theories, linguistic systems and a variety of scientific and abstract thoughts to be visualized, often spectacularly.

Language 'speaks us' (Foucault 1972), just as we speak and devise language - the virus integrates itself into the structure of our mind and becomes an integral part of our lives. But we can 'speak language'; we can and do create new memes, spreading them, virus like, to hosts who may continue the spread. We can reject and counter discourses as often as we accept them.

A dominant discourse

Graphic design, as evidenced by its ubiquitous presence throughout contemporary society and beyond, now plays an important role in the formation of contemporary culture. The shift towards visual culture makes it a key element in the media, occupying ever-larger portions of the internet, television, cinema, games, newspapers and magazines. Increasingly participatory media provide designers with tremendous opportunities for communication, as opposed to mere persuasion.

Rick Poynor (A child's fate? 2007: 175-176) describes a particularly apt example of discourse at work in the advertising industry when he recounts the rejection, by various entities, of an advert for a charitable organization. Barnardos, a children's charity, in advertising its services and seeking donations, ran an advert that was soon declared 'too shocking for some viewers'. In it a baby boy wearing only a nappy is seen tightening a tourniquet around his right arm, preparing to jab himself with a drug filled syringe in his left hand. The boy is in a dark, filthy room, with the spoon used for 'cooking' the narcotics lying next to him. The copy in the advert presents him as 'John Donaldson, age 23' and describes how battered and abused children are far more likely to 'turn to drugs'. A challenging image, driving us to see beyond the immediate, to look both ahead in time and imagine 'John' as a young adult, as well as urging us to look back, to see drug users as often being abused babies and children. The message of the Barnardos ad was not at issue, it was the visual communication that disturbed both newspaper readers, and more interestingly, the Committee of Advertising Practice, which advised newspapers not to run the ad. A number of newspapers complied. What, other than discourse, could possibly persuade newspapers to promote unhealthy fast food consumption, cigarette smoking, a consistently anorexic body image, alcohol, violent entertainment and consumer excess, as well as the objectification of women while balking at the presentation of a child reaping the rewards of poor parenting? One can easily follow (without approving of) the logic that media organisations cannot afford the financial repercussions of running counter-discursive advertising targeting the advertisers (usually big corporations) who support them. It is however, quite another story to censor a charity in case they disturb some readers' sensitivities. Could it be that the potential financial losses from advertisers and not readers were ultimately the reason that the ads were removed?

Hot and Cold, Left and Right

Through imagery text is brought alive, transformed from a traditional, linear message to a more 'lateral' image-based interpretation and experience because the designer is able to restructure it as a visual message. By visually 'speaking' the content of a scientific text, financial report or statistical summary the design is moved either from a hot or cold medium (McLuhan 1964: 23) to becoming a balance of the two. Some of the 'cold', intellectually demanding nature of the information has been 'heated' by the inspired interpretations of the designer.

Related to the term 'hot and cold media' is the concept of left and right brain processes in communication. Crow (2006) argues that a trend towards visual media consumption is underway, and has been for some time. Linear, textual information is processed by the left-brain hemisphere, requiring significant mental effort to interpret and apply the message. Visual information leads one from the right hemisphere of the brain (a more emotional, tangible and sensual understanding) towards the cold and logical calculations of the left-brain.

It has been argued that this process allows for a more 'holistic' understanding (Shlain 1998) and this is essentially where the value of the visual meets the logic of verbal thinking in communication. Shlain, too, argues that visual communication is on the rise, changing the way that we interact and understand, creating an epistemic shift. While a set of numbers may well be informative, an image portraying them in visual terms is both instructional and 'moving'. The heart is led to open the mind and the bond between the two is strengthened. Shlain (1998: 407) posits the notion that two influences, described by him as 'feminine'[1] – photography and electromagneticism – have changed the global consciousness. He describes the visual elements of culture as feminine as opposed to the alphanumeric aspects of our culture as masculine in nature. With his observation that images of Earth from space as well as those of nuclear explosions (Shlain 1998: 410) have altered our understanding of the fragility of our planet's ecosystems he demonstrates the power of the image and of the nurturing characteristics of the feminine.

Information at work

An excellent instance of design at work is seen in the presentations of Hans Rosling, a Swedish statistician who presents global statistical data by means of animated charts (Gapminder 2009). The animations graphically represent masses of statistics from the United Nations and other sources. Reading these data sources would be a time consuming task requiring an understanding of statistics and in some cases mathematics as well as socio-political influences on a global scale. The information has often also been withheld, requiring persuasion and pressure from various sources to make it publicly available. Gap minder has contributed to the discourse by accessing this data and simplifying the communication thereof to make it understandable to 'non-experts' who have no statistical training. The organization has provided access to this information via the Internet, making it readily available and highly interactive. In presenting information on the global HIV epidemic, considered a *pandemic*[2] in Southern Africa, Rosling elucidates a remarkable array of information within a limited space of time and goes some way in explaining the massive spread of HIV in the region.

In another superb example, the photographic art of Chris Jordan is a remarkable means of illustrating, quite literally, the information which he communicates (Jordan 2009). In one example, titled 'Gyre' from his most recent project, Running the Numbers 2, he "depicts 2.4 million pieces of plastic, equal to the estimated number of pounds of plastic pollution that enter the world's oceans every hour". This statistic is presented in the form of a photographic collage, based on well-known Japanese woodcut 'The Great Wave off shore of Kanagawa' (Hokusai between 1826 and 1833, printed later). The image comprises 3 panels, forming an 8 x 11 ft (2.4 x 3.3m) print. At this scale the image takes on a monumental, almost overwhelming sense of enormity, dwarfing the viewer and clearly conveying the significance of its content. The terrible irony of his design is the fact that such beautiful imagery is made of such ugly and disturbing objects and behaviour, a literal depiction of the way humans are destroying our natural environment.

Mass-market infotainment

[1] In his book, the Alphabet versus the Goddess, Shlain describes alphanumeric systems as having an inherently patriarchal, even misogynistic impact on society. He presents the argument that historical periods during which the written word has dominated over the image have been typically violent, abusive towards the feminine in every respect. Photography, being visual in nature, is therefore seen as feminine, as is the impact of photography on the cultures in which it has played a pivotal role. Electromagneticism has made possible a wide array of technological advances – not least of which includes many forms of communication, making visuals and sounds available on demand, recording events and experiences in ways that words alone cannot.

[2] Current data, based on 2007 statistics, indicates that there are more than 5.2 million adult South Africans who are living with HIV. The Southern African region is home to only 4 percent of the world's population but 50 percent of the people infected by HIV worldwide.

Recent films such as “An Inconvenient Truth” (2006) and “I.O.U.S.A” (2008) illustrate the effect of information graphics when explaining complex ideas. Each of these describes statistical and theoretical data in ways that are understandable to mass audiences worldwide. The response to each film has been significantly positive. It should be noted that neither film presented information which was not yet publicly available, but both were highly informative in that their audiences were previously unaware of the information presented. Design overcame the discursive rules and mechanisms of control that had helped keep masses of people ignorant of the environmental threat facing the world and the financial irresponsibility of the USA.

Information and online media

Information graphics found on the Internet are often consumed in the same way that a magazine article, online poll or movie trailer may be, they are seen simply as ‘online content’. Audiences often describe themselves ‘surfing the web’, or watching TV, instead of specifying exactly what the content of their media experience is at that time. Here it is in fact the medium that becomes the message (McLuhan 1964: 7-21), communicating in a primarily visual manner and impacting the lives of its audience in ways more lasting and significant than the content itself. This means that information, previously buried beneath jargon, dry and visually unappealing pages, both digital and physical, from seldom frequented sources, can be found, consumed and appreciated in a non-threatening or even entertaining manner. The exclusive realm of the Statistician has been invaded by the Designer, who communicates the data. This democratises information and ‘creates’ knowledge for many. The author is truly dead, and the medium has indeed attained the upper hand.

The observation that the “user is the content of the internet” (Levinson 1999) is vital to understanding just how extensive the democratisation of information can become. The user is not only able to read the “content” of the message but is able to become a contributor, disseminating this information and giving voice to it when “the sender is sent” (Levinson 1999). Users are able to attach hyperlinks, embed content within personal blogs, copy and even e-mail much of what they discover on the Internet. This process often adds some trace of a personal countersignature to the information. At the very least sharing the design declares it important enough to be acknowledged and shared by the user. Beyond this the user may comment on the information, adding to the communication process an opinion, insight or criticism, often of a personal nature, adding to the discourse through commentary.

Why are designers responsible?

Manuel Castells claims, “The language of media has its rules. It is largely built around images, not necessarily visual, but images. The most powerful message is a simple message attached to an image” (Castells 2007). He goes further to state “the media have become the social space where power is decided.”

Creating opportunities for mass audiences to participate in the formation of discourse, through the conveyance of information, is of paramount importance. Just as artists once served the church, and later the state, they now serve business. Designers have the chance to bring enlightenment to the masses because not since Gutenberg’s press has there been such a powerful transformation of the means in which information is disseminated. With digital, converged media, the ability to communicate visually, access to important data and a will to serve the greater good, designers can facilitate an epistemic shift. Discourses may be laid bare to all, and the very means with which we create our knowledge transformed, released to anyone who wishes to participate.

The signatories of the First things first 2000 manifesto (Various 1999) state that “There are pursuits more worthy of our problem-solving skills” and further propose “...a reversal of priorities… toward the exploration and production of a new kind of meaning”. Should a multidisciplinary approach be adopted, the role of the designer may become broader, less narrowly defined and more socially responsible.

But why should graphic designers in particular practice this form of communication? What reason exists to pursue what must in most cases, at least in the present discursive framework, be work of a non-commercial nature? The answers are multiple, but for a philosophical perspective we need look only to the writing of Emmanuel Kant and John Stuart Mill.

The “categorical imperative” (Kant 1785) describes, without the cultural or religious impediments attached to many other arguments, our moral responsibility towards others, our planet and ourselves. Mill presents a compelling argument in his essay titled ‘On Liberty’ (Mill 1859), where he discusses the limits of power and authority over the individual, presenting guidelines as well as questions and practical examples to illustrate his points. Were all designers to act as recommended by these two texts, by making every effort to do no harm, either to others, the planet on which we live, or even ourselves, and to exercise power for the benefit of as many people as they can, design would feature far more important messages and applications?

What to do?

The environmental, social, political and economic world in which we now live is so different to that of the twentieth century that it demands a different approach to art and design education. Frequently we in the arts wish to see others (science, etc) recognize the value of our contribution to the world. It seems that in many cases they have, but we have not yet reciprocated. MIT, one of the leading engineering Universities in the United States, insists that Engineering students complete some Arts & Humanities courses while studying towards their engineering degrees. PPE (Philosophy, Politics and Education) programs are offered widely in the UK and US but are practically unheard of in South Africa. Graphic Design students in South Africa and abroad receive absolutely no obligatory formal education that includes faculties such as Science, Economics, Law, or Social Sciences. It is assumed, apparently, that to train and practise as a graphic designer one needs no philosophical training. Philosophy is recognized globally as vital to the development of critical thinking skills. Designers apparently also need no understanding of economic systems, political structures, scientific developments or legal frameworks. This is tantamount to educational negligence. It inhibits criticism and discounts the relevance of all other fields of human experience. Specialisation is important but needs to be complemented.

Castells argues that Universities are “some of the most conservative organisations on earth” and that they are highly resistant to change (Castells 2009). He also states that universities need to promote “human values” and train “self-programmable labour through interdisciplinary education”. He argues for a wider application of Social Sciences to University programmes. The social, cultural, environmental and financial structures of our world are changing faster than ever, but are design curricula equipping students to adapt themselves accordingly, or are they following the well trodden paths of previous education paradigms, or what Foucault would call ‘Epistemes’? (Foucault 1972). Are design courses truly helping students to be more ‘human’ and self-programmable?

Accepting that the complex nature of our society requires a more complex education. Simply reducing, by very little, the design and art related subject requirements of design programs would allow for the introduction of one or possibly even two compulsory modules / subjects from other disciplines or faculties. Equipping our students to think ‘outside the box’ of art and design may seem a foreign notion to us as educators but certainly could help them to become better workers and employers and equip them to be better citizens.

Not all designers could be mathematicians, scientists or biologists. But some may well be. There are countless examples throughout history of brilliant individuals achieving success in a variety of fields. Einstein played the Violin, Da Vinci was an artist, engineer and architect and many others have combined art with science, mathematics and other fields. Many designers may benefit from the introduction of Social Sciences to their education. Statistical analyses would be possible to designers and possibly lead to greater dissemination of important information if they studied statistics. Who knows what life-changing thinking could emerge from the collaboration of designers with chemistry, mathematics or biology.

Design, and Art curricula could be adapted a little, offering a space for students to attend lectures outside their art schools and meet, study and interact with students of other fields. These courses could be treated as *Capita Selecta* components allowing each student to customize their selection according to their needs. Perhaps some subjects could be adapted to accommodate design students. Obviously there may be various logistical hurdles but these are not at all insurmountable. Philosophy, Media Studies, Media Ethics and Literary Theory would all be extremely beneficial additions to the education of designers. Currently, students would need to take on such courses as extra credits, burdening them unnecessarily.

What do design educators or students have to lose from a slight broadening of the educational scope? The potential benefits of students equipped to communicate visually in the information age, while understanding ethical or social issues are enormous. The first, second and third years of any designer's education could be used to build their critical skills more effectively and develop an understanding of the world around them. Perhaps then we would see a more widely adopted appreciation, on the part of practicing designers, of graphic design beyond marketing and advertising. The question that most begs answering is, are we as specialist art and design educators confident that we are providing our students with enough, or do we want them to get more than art and design at university? Are we still teaching students what they were taught in the previous century, and if so, should we be?

In conclusion, Jorge Frascara points out that by 2002 the University of Alberta had already introduced a Bachelor of Design Programme that "formally integrates courses in Anthropology, Sociology and Psychology" (Frascara 2002b). He also states "psychology, sociology and anthropology provide techniques for investigating the relationships between people and design." It is this relationship, between people and design that is so important to the future of design in contemporary culture, let's help future designers in South Africa make those connections by following the examples of forward thinking, socially engaged educators in first world countries. We can create new discourses, following the examples already implemented in other countries; we can use disciplines from other areas of study to spread the memes that will help shape the public discourse that designers promote. It is in our power to use education to subtly change the influences on contemporary culture, and according to Kantian philosophy we are therefore obliged to do our best in this regard.

Finally, in the words of Frascara I hope that this argument will help to "promote the possibilities that the formalization of this interdisciplinary connection creates, and that it will also promote a critical look at the contexts within which we operate, ensuring that a humane life is held at the center as the maximum aspiration of any intellectual effort."

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Short Biography

Darren Taljaard is a lecturer - Design, Advertising & Copywriting. School of Language, Media & Culture – NMMU. Having practised as a designer within the advertising, publications and packaging industries for 14 years in Port Elizabeth he was appointed as associate lecturer in July 2007. He has since been promoted to Lecturer and is currently engaged in research within the areas of Design Auteurship, Interdisciplinary Design Practice and Ethical Influences on Designers.

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THE ETHICAL DILEMMA OF A RAPIDLY RECEDING WATERING HOLE: IMPLICATIONS FOR DESIGN EDUCATION

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Abstract

Ethos, the origin of the word ethics, originally meant a place where animals frequent. When the herds gather at the watering hole how do they interact with other herds, species or competition? How do they behave in a way that they will be welcomed back?

A failure in ethics is an indication of a fundamental blind spot about the nature of things. Ethics should never be a listing of minimal (usually negative) standards but rather a way of sensitizing us to nature and the human community (Moore 2003). We as Homo sapiens or in Latin "wise humans" have lost touch with our subtle understanding about the nature of things. Globalization and the scale of industrialization required to maintain our booming population have also led us to a new era of ethical behaviour. The overcrowding around the watering hole is unprecedented. No model of the past has adequately taken into account an estimated population of 6.684 billion (as of July 2008) and an expected 9 billion by 2054 (UN Population Division 2001).

It is essential that we relearn how to 'drink at the watering hole' in a sustainable and equitable manner bearing in mind that we don't jeopardize our children's chances of being welcomed back!

Keywords*: Design Ethics, Leapfrog Hypothesis, Moral Psychology, Sustainable Production, Ubuntu.*

Introduction

Ethics: you know what it is, yet you don't, but that is a contradictory statement. Why do some systems work better than others? Some systems are better than others; if ethos is the *modus operandi* then things tend to run more smoothly. But when you try and say what that quality is apart from the things that have it, it doesn't add up. There is nothing to talk about, or as Aristotle found out in his ten book series on ethics, there is too much to talk about. Obviously some things work better than others but what creates this "betterness", why is there no list of things that work and a list of things that don't? As we will see later in the paper, ethics can never be a list of standards or rules to live by. Ethical choices are mostly subjective and usually a cause for much debate; the one thing that is certain in almost every case is that if a choice is made with genuine thought for other (being people and planet) then it is most likely heading in the right direction.

This paper discusses the recurring emergence of ethical awareness in design. An overview is presented on Eastern, Western and African ethics models as well as a discussion on the traditions that lead to the differences. A designer has a responsibility and should act proactively as an ambassador to the world at large. Designers have the power to act either with wisdom and exercise sensitivity towards sustainability, or to simply maintain the status quo of working towards perpetuating human greed for short-term gain as has been the norm since the Industrial Revolution.

Further, this paper will suggest the (possible) direction of future design pedagogy towards ethical practices within the South African context and the effect of such practices on the design of products. Appropriate methodologies inform the process of making ethical choices towards sustainable solutions that create corporate conscience as well as local and global prosperity.

The authors wish to pose a few questions that should set the mood for the rest of the paper. When is an ethical act ethical? What is the difference between morals and ethics? If ethics are subjective how can they play a part in academic discourse? Is ethical design a long-term goal? How will this affect each of us individually?

There are as many theories about ethics as there are schools of religion; this is not a chance coincidence. The eons-long debate about the nature of divine essence is mirrored in discussions of morality. Humans are the only creatures that have issues of morality, as we are the only creatures that live beyond our means. If another species developed beyond the capacity of their ecosystem they would be removed, relocated to, or altered towards equilibrium by the very environments they live in. If we develop the definition of *ethos* into today's context then the human race has not only taken over the watering hole but has eaten all the animals, fenced it in, polluted it and is busy moving to the next one.

The Watering Hole

In *ethos* there are no rules, no listing of negative and minimal standards that the animals abide by. There is an understanding that the right thing is done because continually doing the right thing will result in a radical sense of community. This sense of community around the watering hole leads to a life sensitive to that other than self but still in context of the self. In our anthropocentrism (human-centeredness) we have moved to the top of the food chain but lost our sensitivity to nature and community. That double-edged sword makes us human but also is the tool we use to destroy the watering hole.

There is no discussion of removal from society and living in an eco-village, especially not for the majority. We have passed the point of no return; there is no longer enough space for each family to grow a vegetable garden or to harvest their own fuel. In our age of hyper-individualism we have been forced to become acutely aware of sustainable considerations for environment, products, transport, and so on. We have had to redefine our list of priorities, as the world cannot maintain our current vision of 'utopia'. The mere act of reaction to the global problems is what this paper is about. Any strong reaction is a warning sign that the subtle balance of equilibrium is more lopsided than nature allows. Our blind spot is our belief that we should look out for those nearest and dearest. Our blind spot is not realizing that the more we populate this earth the more we have to act for the betterment of others. Ethics is a method of coming to terms with the fact that although we are alone in this universe (for now), we are all alone together. This sense of a common destiny informs the African concept of *ubuntu* (which will be elaborated further on).

Ethics and society

Despite the overpowering global drive for sustainability we see very little (in terms of everyday designed products) *evidence of reduction, reuse* or *recycled goods*. The drive for sustainability is seen in markets, craft shops or designed goods that place the product out of reach of the intended consumer (Thomas 2006). According to Maslow's hierarchy of needs *Esteem* comes after *Love/Belonging,* then *Safety*, which in turn evolves from Physiological needs. In a country where almost half the people live below the poverty line - where such people barely eke out a subsistence existence, how can ethical choices in sustainable products be a priority? If South Africa (or any other developing nation) does not seize the opportunity to leapfrog into a truly sustainable future, then the road towards socio-economic equity will be fraught with obstacles. Thus the Leapfrog Hypothesis is informed by a progressive vision – that industrially developing (or majority world) contexts need not go through the wastefulness of the more industrialised ones but instead 'skip over' or leapfrog into more sustainable ways of living.

The driving force of globalization and consumerism is free-market capitalism (McCarron 2003). Admittedly, South Africa does not have sufficient capacity and infrastructure (compared to that of the so-called developed world) to deal with the scale of waste and related issues that certain imported products require. Such products including car batteries, packaging waste, and disposal of compact fluorescent light (CFL) bulbs and hazardous wastes, among others.

The discussion focuses on real world ethical design choices that are not only specific to South Africa but are also relevant to the global community. Such choices are essentially qualitative and can be taught. The authors believe that the Green Movement and its partner philosophies are the only long term life plan for this planet but also acknowledge that the nature of societies and its people do not prioritize long term thinking. As Manzini (2006) states, the ethical product guidelines to which we

should conform "*increase individual freedom and democracy of consumption designing effective, accessible, beautiful products".*

Complexity

Most ethical models, some of which will be discussed later, catered for a time in history very different from today. Deontology, Utilitarianism and Virtue or (Nicomachean) Ethical models were all developed before the population boom of the last century. According to the UN (Population Division) we will have reached a bifurcation point by 2013 and will move from a state of high entropy to a state of low entropy[1]. The population boom will slow down but we should not see a reduction[2] within our lifetimes. This paper is not about population density; the authors employ these statistics to illustrate the basic vision of the watering hole and how it relates to designers. We as designers should be designing for a future world where 9 billion people share the watering hole we call Earth.

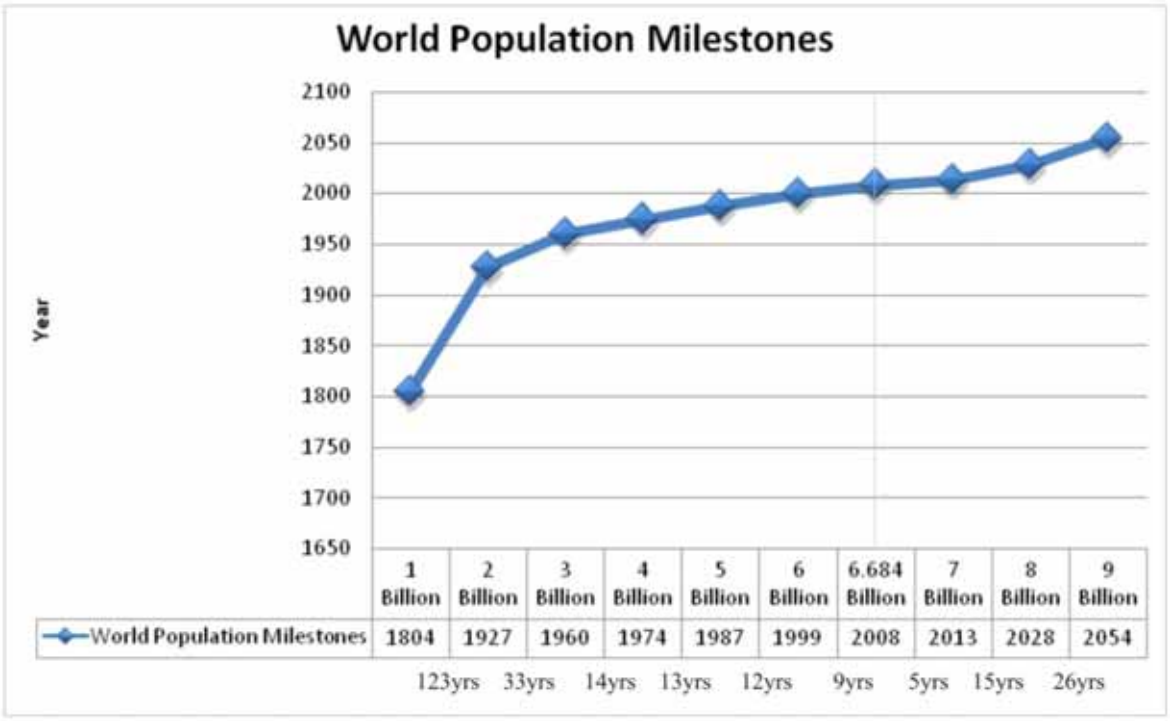

Figure 1: World population milestones (UN, 2001)

Ernst Mayr, one of the greatest animal and species evolutionists of our time would support the view that we need to think collectively as a population. Darwin used this thinking (that moved away from essentialism) in his theory of natural selection "changes that prove to be beneficial for survival are preserved and others die out" (Taylor 2003). We know what sustainable solutions are needed in the design communities yet the market, customers and environments dictate solutions that only cater for short-term gain without seeing the big picture. Our watering hole is now immeasurably more complex but the fundamentals are still the same, we need to drink clean water, we need to share our source and we need our children to be able to share these basic privileges.

The Ethos of Ethics

The differences between morality and ethics are often misunderstood and more often misused. One word is derived from Greek and the other Latin, the interpretation of the two lean toward specific nuances that set them apart (Keown 2005). Morality has an essential social element and is generally

[1] Entropy could be described as a measure of the disorder of a system. Systems tend to go from a state of order (low entropy) to a state of maximum disorder (high entropy). The moment of truth is when a bifurcation point or turning point is reached.
[2] Barring disasters.

accepted within social contexts, morals dictate the good and bad from a personal standpoint, morals are usually dictated by rules. Ethics tend towards the professional and are usually set in a formal system or code that is accepted and adopted by a group of people making it more objective than morals. Ethics are thus expressions of internalized values whilst morals are externally dictated codes of conduct.

L. Ron Hubbard says "morals are a codification of things which man has discovered to be bad for himself and for others [ethics] in his history, and having discovered that these things were inhibitive to his own survival, he then made a law about them" (Hubbard 2004). The authors see a similarity between this in view of the previously cited Darwinian perspective on survival (Taylor 2003).

Ethics in the West

There are three major models of ethics in the West; the authors will discuss these now followed by the basic differences in the East and in Africa (figuratively referred to as the South). Deontology, which could be described as descriptive ethics had Immanuel Kant as one of its leading proponents. Kant bases his morality on practical reason. He argues that we could never claim to discover an all-commanding principle or sets of principles through a moral philosophy; he states that the *a priori*[3] is the only way not to confuse conditional truths. Kant distinguishes between autonomous and heteronomous, he argues that [autonomous] humans are 'self-legislating' wherein they are 'given' their moral law by environments and surrounds from child to adulthood, they are then 'self-motivated' or 'self-constraining' in their dealing with the law (Denis 2008). In contrast [heteronomous] animals are instinctual and interact with the world through impulses and empirical desires (*ibid*). The essence of deontology is therefore a promise *(rule)* of the past that obliges a future action or non-action.

Utilitarianism is a form of normative ethics that proposes broad rules and principles that guide our actions; its goal is to build character by defining the life we should lead. The utilitarianism principle of 'greatest happiness' says that actions are right in proportion to their promotion of good consequences (happiness) and wrong when they produce bad consequences (consequentialism). Utilitarianisms' core principle is beneficence, to be helpful to others according to your means without desire for reciprocation. This principle and system, although virtuous in its idealism, is flawed when looked at from the context of the complexity that the current population brings to the planet. The understanding of what can help or hurt in today's society is infinitely more complex then it was in the 18th century when utilitarianism was evolving.

Virtue Ethics (or Nicomachean Ethics) has its roots in Plato and Aristotelian thought.[4] Virtue ethics emphasizes moral character or virtues, it does not justify the act in terms of consequences (as in utilitarian) nor does it follow a set of moral rules (as in deontology). In virtue ethics you do the right thing because it is the right thing to do for you and consequently for those seen and unseen around you. Virtue ethics is seen as an opportunity not a demand, its reciprocal law is the more we get from community the more we owe it. The subtlety of a virtue ethics act can be seen in this example. A truthful person does not try and tell the truth, they do not think through the pros and cons while simultaneously qualifying their version of the rules governing the answer. There is no truth for fear of being caught out or because there might be a benefit to telling the truth. A truthful person tells the truth because it has become part of their character. Aristotle (350BC) emphasizes that to know that a virtue is the right thing to do is not a perfectly virtuous act '…to know what virtue is, is not enough; we must endeavour to possess and to practice it, or in some other manner actually ourselves to become good'. Much like life at the watering hole a truly virtuous act does not suffer against conflicting desires. We do, because doing otherwise would cause unbalance. '... the virtue of the good man is necessarily the same as the virtue of the citizen of the perfect state' (*ibid*).

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[3] *A priori* knowledge is independent of experience.

[4] There is much evidence that Nicomachean thought has its roots in ancient Chinese philosophy though this is outside the focus of this paper.

There have been many debates around virtue ethics; they boil down to this: what about those that have no propensity toward living a virtuous life? (Hursthouse 2007). This is a pivotal point that has stopped virtue ethics from being accepted by the masses.

Ethics in the East

Ethical models in the East[5] are difficult to compare to western thoughts. According to David Wong Taoism and Confucianism see the world as inseparable from the journey of knowing one's place in the world (Wong, 2005). Chinese philosophy is designed toward an improved way of life by means of stories and sayings; this is a way of life, a mythology brought about from a young age. Western thinking is debate-based; we qualify statements through reason and argumentation and then lay down a set of rules that will limit potential error. Eastern thought did not have a set of definite principles; each situation required its own resolution depending on the weighing up of judgments. There is a thought that is mirrored in the Daodejing, Confucianism and Buddhism that says the cultivation of the self leads to an understanding of the way of the world and our journey in it. This thought is intellectualized by the west but the complex mythology of the early eastern thinking (a thinking that spurned logos) is a barrier that is difficult to overcome. Aristotle moved in this direction when he commented that the young could not comprehend the good in human life because they do not have enough life experience (Wong 2005).

Buddhists[6] don't have much to say on ethics because they base every thought on morals. Early Indian texts do not even have a word for ethics, Buddhism could be thought to be egotistic and altruistic; it views moral conduct as it benefits oneself and others. In this perspective it is similar to Virtue Ethics; Keown (2005) suggests that Buddhism belongs to the same family of ethical theory as virtue ethics.

Ethics from an African perspective

The equivalent of virtue ethics in Africa is founded on an age-old concept known as *'ubuntu'*. This ancient and time-honoured anthropocentric philosophy finds myriad expressions amongst different traditional African societies and is being evoked right across the continent to rally up support for participatory developmental projects (M'Rithaa 2008). The essence of this universally applicable ideal is variously transmitted via folklore and wise sayings or proverbs – a popular medium not very dissimilar to the practice in the East (discussed in the previous section). Consider this example from the Zulu language in southern Africa: *"umuntu ngumuntu ngabantu".* This can be literally interpreted as *"a person is a person through other persons"* (Mbigi 1997; Creff 2004; Bhengu 2006) or, to put a twist on Cartesian logic; "We are, therefore I am", and "we think, therefore I can". The important point here is that there is an inextricable link between the individual and his or her community. The benefit of voluntarily relinquishing self-serving pursuits and self-indulgence is so that the individual can enjoy a wholesome and meaningful life – an ideal related to the Aristotelian concept of *eudaimonia* (Hursthouse 2007) – within a nurturing and supportive community.

The authors wish to state from the outset however that *ubuntu* does not fit the Western model of formalized knowledge but is flexible as well as being context-, and content-dependent. It is negotiated, adjustable, and thus by extension, versatile. As Mike Boon (2007: 26) points out:

> "Ubuntu is not empirical. It does not exist unless there is interaction between people in a community. It manifests itself through the actions of people, through truly good things that people unthinkingly do for each other and for the community. One's humanity can, therefore, only be defined through interaction with other… It is believed that the group is as important as the individual, and a person's most effective behaviour is in the group. All efforts working towards this common good are lauded and encouraged, as are all acts of kindness, compassion and care, and the great need for human dignity, self-respect and integrity."

[5] The references to the East herein are generalized and based on ideas that were endemic to this region before the pervasiveness of Western thinking impacted that part of the world.
[6] There are an estimated 1.2 – 1.5 Billion Buddhists in the world today.

South meets West

As a point of interest, the authors would like to revisit the Aristotelian virtue ethics, and in particular the three different forms of knowledge attributed to him, namely; *episteme*; *techne*; and *phronesis* (Jönsson 2005:179). Whereas *episteme* (from which epistemology or the theory of knowledge is derived) and *techne* (technology or technique) have found greater acceptance (and indeed some degree of prestige), Jönsson (2005: 179) argues that *phronesis* on the other hand has been generally unappreciated as "there is no active, contemporary equivalent" meaning assigned to its understanding. Hursthouse (2007:4) approximates the closest definition of *phronesis* with respect to *ubuntu* as "moral or practical wisdom". As designers trained in an essentially neo-Bauhaus model, the articulation and practice of *episteme* and *techne* modes of knowledge happen by default in part due to the inherent philosophical bias towards Western thinking. As shall be argued in this paper, *phronesis* and *ubuntu* are not as dissimilar as one initially expects. Both are "about values and reality, about people and their actions" (*ibid*).

Further, *phronesis* "is not scientific in the epistemological sense, since epistemology is primarily concerned with scientific knowledge that is universal, constant in time and space, context-independent and based entirely on analytical rationality. The knowledge relativism that is an integral part of *phronesis* is thus almost unforgivable in an epistemological approach" (Jönsson 2005:180). This view is supported by Ehn & Badham (2002:6) who challenge designers to re-interrogate their present notions of *phronesis* by going back to a time when the "virtue of *phronesis* had not yet been suppressed". They argue that *phronesis* lost out in part due to "the fragile and unpredictable nature of human action" (*ibid*). Notwithstanding, Ehn *et al* (*ibid*) have shown the efficacy of such reasoning to interaction and participatory design wherein they describe *phronesis* as an "Aristotelian vision of ethical life [and] practical wisdom" (*ibid*). Jönsson (2005:181) justifies the renewed interest in *phronesis* due to the fact that "the epistemological and the technological alone are not able to stand for all that is relevant in […] design". From the viewpoint of *ubuntu,* the defence of *phronesis* would be just as valid for the former. Ehn *et al* (2002:6) present the following eloquent rationale:

> In phronesis, wisdom and artistry as well as art and politics are one. Phronesis concerns the competence to know how to exercise judgement in particular cases. It is oriented towards analysis of values and interests in practice, based on a practical value rationality, which is pragmatic, and context dependent. Phronesis is experience-based ethics oriented towards action.

The authors wish to suggest that *ubuntu* as an African form of '*ethics by consensus*' relates best to the Aristotelian concept of *phronesis*. Further, *ubuntu* is a pragmatic concept that bridges the Western and Eastern concepts of ethics whilst simultaneously offering a dynamic platform for debate and engagement of individuals and their communities (elective or otherwise). As members of our own communities and societies, we cannot stand outside of the same. The responsibility of educators extends beyond interpreting paradigmatic changes and necessitates that we "integrate them into the education system so that they become meaningful, and take root in the consciousness of the people of South Africa" (Tisani 2004:174). Tisani (*ibid*) places a greater responsibility on higher education practitioners, as the onus on production of new knowledge "falls directly on their shoulders". Tisani (2004:175) emphasizes the importance of engaging African indigenous knowledge systems as a transformational tool. Other knowledge systems should not be discarded, but similarly critically engaged with where there is proven efficacy of their value. Higgs (2007:669) concurs by placing emphasis on *reason* (or rational thinking) as a universal human phenomenon.

Ubuntu in Education

The ultimate strength of *ubuntu* is in its pervasiveness and inclusiveness. All the traditional value systems are underpinned by the ideology of *ubuntu* (M'Rithaa 2008). In sub-Saharan Africa, it is the relational bond that holds entire communities together through an expanded view of kinship. It is a vital force in a continent that has such a diverse range of cultures, colonial histories, and geo-political realities. Once again, using the analogy of the watering hole, the community negotiates through a public forum of open dialogue (where everyone has equal opportunity) to deliberate on the issues in discussion. The members debate and agree on limiting destructive impulses of hyper-individualism through voluntary restraint. These forums are typically dynamic and the exchange is robust wherein members use proverbs, axioms and other verbal/oratory devices honed to perfection over countless encounters. The final resolution on appropriate social intercourse is then accepted by proclamation

with every member in the community expected to uphold the shared community-building ideals and values.

The principal goal of subscribing to *ethics by consensus* is to achieve a collectivized sense of *eudaimonia* – wherein *all* members of the community stand to benefit. One very effective device used in enlisting support for ethical behaviour is through constant praise and adulation for those displaying character traits deemed to be desirable for the common good. There is thus an implicit link "between *eudaimonia* and what confers status on a character trait" (Hursthouse 2007:7).

The challenge for us as educators is to align our academic and intellectual discourse within our communities-of-practice and society at large whilst simultaneously taking cognisance of our ethical responsibilities towards our student body, not as their superiors, but in the humility of service to them. As implied herein, an enlightened, elective form of *ubuntu* cannot function without a socially interactive context, and as Creff (2004:8) correctly asserts: "the extent and importance attributed to values shared by *ubuntu* and servant leadership are significant" – this can only be fully realized in the context of an inclusive egalitarian and open-minded society.

The reason?

There are as many models of sustainable design practices as there are schools of design. The reason for this is that there can never be one all encompassing system in a world of differing ideologies. Every culture has different needs, each culture uses and misuses the watering hole in a different way depending on what they have, what they don't have and what they need. Ethics is situation-, culture- and needs-dependant. It is therefore the humble opinion of the authors that although the green movements are essential to the survival of the planet (much like deontology versus virtue ethics), the system that relies solely on imposing rules limits the scope and potential of possibilities. As stated earlier, Immanuel Kant insists that there can never be a single principle that governs all sentient beings (Denis 2008). There is need to balance tolerance for divergence of opinions with a mutual respect and understanding of underlying contextual worldviews and motivations. Just like the herds of wildlife on the African savannah, an enlightened sense of our common destiny demands constructive engagement - even with the most disagreeable of ideological species!

In conclusion, without the scaffolding of ethical design to support and nurture the numerous green movements (and other expressions of socially responsibility), such beneficent movements run the risk of becoming dry and uninspiring lists that can only enlist reluctant engagement. Those who are passionate and see a need to (pro)actively encourage the adoption of sustainable solutions will most likely be vastly outnumbered by those who do not necessarily follow a moral law or ethical code. Through this exploratory paper, the authors believe that aligning *phronesis* with the African concept of *ubuntu* and Virtue Ethics could inspire a new model of ethical design, a flexible model that could mobilize the inherent desire for harmony between people, the planet, and the future to create a global watering hole that functions elegantly no matter what herds gather therein, and in so doing promote social equity and cohesion (Vezzoli 2007). Further, by harnessing the potential for social good, African economies can indeed leapfrog into a more sustainable production and consumption paradigm without the concomitant wastefulness associated with past and present modes of industrialization and socio-technical development.

Educators have the opportunity and the duty to instil in designers (within our communities-of-practice) the knowledge needed to take up this most pressing of challenges. Those who influence the production and construction of our world are the advocates of our futures. Victor Papanek (1995:48) exhorts that "…in the 21st century ethics must form part of design training". As facilitators of learning, we need to encourage a more holistic and comprehensive view of the potential role of designers to make a difference though inspired informed decisions and ethical choices. We must accept responsibility for the noble calling to which we are drawn as design educators and in so doing play our part in shaping the tools that will ultimately shape the world; to envision for those who have trouble seeing and to future proof our watering hole for those who will follow in our steps and inherit the only watering hole we know of thus far. May ethics in education be the tool that will simplify our ever more complex societies, countries and planet.

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Short Biography

Johan van Niekerk is a lecturer at the Department of Industrial Design at the Cape Peninsula University of Technology (CPUT), Cape Town. He received his Degree in Industrial Design and has worked in industry for close to a decade wherein he has developed a prolific portfolio of products. As well as pursuing studies in Jungian psychotherapy and electrical engineering, he is currently completing his Masters in Higher Education at the University of Cape Town.

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DESIGN THINKING – CROSSING DISCIPLINARY BORDERS

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Abstract

Design thinking, a well-known topic of discussion in the design discourse, offers exciting innovative possibilities when applied in other disciplines. This paper explores the potential of design thinking in the seemingly disparate discipline of Operations Research/Management Science (OR/MS). OR/MS develops mathematical models for analysis based on quantitative logic as an answer to management or other real life problems. Design shares this concern with trying to improve current situations but approaches these problems differently, using 'designerly ways of thinking'.

This paper begins by briefly introducing key problem areas within the discipline of OR/MS. It then discusses two aspects that are central to the problems experienced within the discipline, namely the theory versus practice dichotomy, and the relevance of OR/MS in the increasingly complex management environment. The next section explains design thinking characteristics, based on a selection of models found in literature written about the topic. This is followed by a conceptual exploration of the characteristics of design thinking concepts as a solution to some of the problems identified in OR/MS, and the implications for design education.

Key Words: *Design thinking, Interdisciplinary collaboration, exploration and development*

Introduction

The theme of this 12th Design Educators Forum of South Africa (DEFSA) Conference is "Opening gates, between and beyond design disciplines". Design is known to be an interdisciplinary field, and design activities and outcomes are developed in conjunction with (as well as used in) many other disciplines, including management, marketing and entertainment. Moving the concept of design beyond the design discipline itself creates exciting new challenges and opportunities, not only for the various other disciplines involved, but also for design education. The idea for this paper was incubated in a postgraduate classroom environment during an interdisciplinary design elective[1]. Within the current academic environment it is not strange to have students from diverse disciplines such as management, theology, engineering and publishing studying the same subject matter (and sitting in the same class). This paper therefore finds conceptually exploring the potential of Design Thinking in the (seemingly) unrelated discipline of Operations Research/Management Science (OR/MS)[2] very fitting.

The discipline of OR/MS is firstly introduced. The introduction is followed by a brief outline of some of the current problems in this well-established discipline. This section highlights these problems as being, amongst others, the increasingly complex management environment that OR/MS has to operate in; as well as the dichotomy between theory and practice within the discipline. It is followed by a description of the characteristics of Design Thinking, and then by a conceptual exploration of Design Thinking as solution to some of the problems that have been identified in OR/MS. The paper concludes with a discussion of the implication for design education.

OR/MS: at the brink of a new era

OR/MS is an applied science that uses quantitative methods and models to analyse and solve real life management problems. It was first used to develop quantitative models to help improve efficiency in military operations during World War II, and was then adopted by an increasing number of public and

[11] These interdisciplinary post-graduate design electives were explained at the 2007 Defsa Conference (Van Zyl 2007).
[2]Operations Research/Management Science (OR/MS) is the discipline of applying advanced analytical methods, such as mathematical modelling, to assist in decision making in business environments.

private organisations. OR/MS became especially popular amongst people that had to manage processes, because it usually improved efficiency, and because it became well accepted as a scientific paradigm. The three decades from 1940 – 1970 are considered the “golden age" of OR/MS, and during that time the discipline became a legitimate subject for education and academic discourse. The classical OR/MS problem solving approach is illustrated in Figure 1.

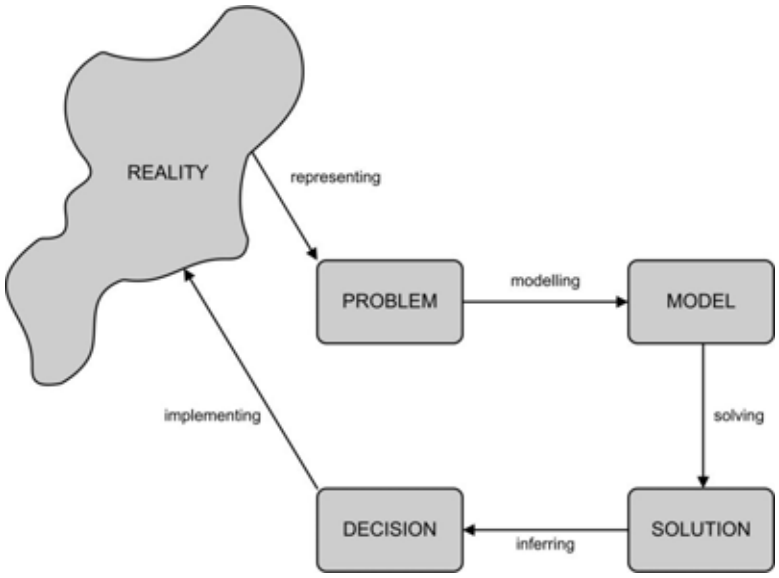

Figure 1: Illustration of the OR/MS problem solving approach [Adapted from Rardin (1998)]

In the period between 1970 and 2000, the relevance of OR/MS started to be questioned. What was especially questioned was whether OR/MS could still be a useful tool to solve real life problems. This became known as the ‘crisis’ in OR/MS.[3] Some practitioners saw the incessant debate surrounding the ‘crisis’ as counter-productive navel gazing. As the topic’s popularity fizzled out in the last decade, the string of publications petered out. It is tempting to conclude that the issues that first sparked the discourse have also faded into irrelevance, however, current discourse in the international OR community (and especially the South African OR community) shows this is not true. Even though OR has evolved, subsequently addressing and remedying some of the issues, niggling remnants exist[4].

Today, the demand for relevant, effective and timeous solutions to imminent problems is increasing, offering great opportunities for OR to contribute to industry and society. However, to fully capitalise on these opportunities the discipline needs to address what remains of the issues that once threatened to sink a discipline.

A brief context needs to be created to understand what was termed the so-called ‘crisis’. Corbett and Van Wassenhove (1993:627-628) explains that there are three different activities in OR/MS, namely Management Science, Management Engineering and Management Consulting. Management Science is the process of developing new theoretical quantitative tools. Management Consulting, found on the other end of the spectrum, is the process of implementing already well-developed OR/MS tools. Management Engineering is a process that bridges the gap between the two areas, adapting existing tools or using them in innovative ways to solve real life problems. This is where the problem arose – practical application did not correspond with theory. Ackoff (1979:95) went as far as to call this loss with reality a ‘mathematical masturbation’. (This is particularly evident in the history of American OR society and to date American OR is deemed more “mathematical” while European and British OR is more “practical”.) This perceived inconsistency amongst the development of the three domains is illustrated in Figure 2.

[3] Maurice Kirby (2007) objectively provides the history of the OR/MS crisis.
[4] This perception is supported by a panel discussion and informal discussions with prominent members of the South African OR community at the annual ORSSA (Operations Research Society of South Africa) conference held in Stellenbosch, South Africa (20 – 23 September 2009).

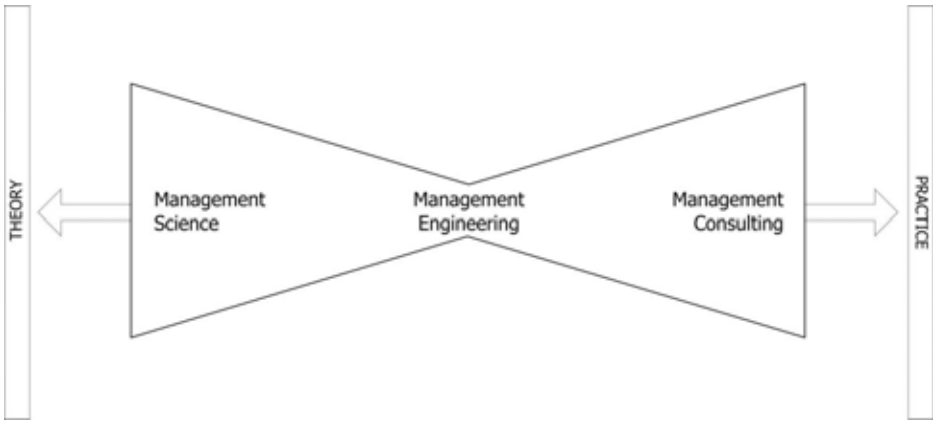

Figure 2: Perceived inconsistency amongst the development of the three domains of OR/MS as described by Corbett and Van Wassenhove (1993:628)

Corbett and Van Wassenhove (1993) define five problem areas that needed attention if OR/MS was to again become a valuable and relevant discipline that would be able to provide practical and useful tools with which to solve real life problems. Although efforts were made to redress these issues current discourse within the OR community confirms that they are still evident – even if to a lesser extent. A sixth problem area defined by Kirby (2007) will be added to the five points in this paper, and these six points are briefly discussed in the next section.

Tool-orientation vs problem-orientation.

OR/MS was initially used to develop tools to optimize the efficiency of operations, and the tools that were developed formed the foundation for the discipline. Later, practitioners were accused of maintaining an overly analytical focus while problems were becoming increasingly complex. Pierre Hansen, an American operations researcher (in Kirby 2007:2), highlighted the problem when he called it an obsession with tools, and ignorance of management needs. This problem area is possibly the one area that the OR community has had the most success in redressing – at least within industry, but the tool-orientation still persists in classrooms and academia.

Client relations in OR/MS.

Client relations in OR/MS have specific shortcomings, according to Corbett and Van Wassenhoven (1993:631). The first shortcoming is a communication barrier between managers and operations researchers. One of the reasons for the existence of this barrier is a lack of common terminology. Management practitioners use the loose terminology of business, and Operations Researchers use very precise scientific terminology. Secondly, the OR/MS discipline is not visible enough for managers. Lastly, the value that OR/MS can add to any problem solving (or efficiency improvement) process is not made clear to the client. This last aspect is not as simple as it seems, as the value that OR/MS adds is deeply embedded in the entire problem solving exercise.

The learning effect of an OR/MS study

In practice the purpose of an OR/MS study is to help management understand the complex problems they face by determining the factors that should form the main focus for decision-making. Hans Ittman (2009:sp) an accomplished practitioner and manager of OR teams, comments that the emphasis in OR is structuring complex problems, or “messes”, using a scientific approach. According to him the emphasis is on addressing (and not necessarily solving) the problem in a way that can bring insight to the decision makers. This is a learning process for management, but this has not received much attention from OR/MS literature. According to Corbett and Van Wassenhove (1993:633) the discipline requires research into how managers can learn from the studies produced by OR/MS.

The relevance of OR/MS at a strategic level.

Although OR/MS is more known for its successes in supporting tactical and operational decisions, many authors, cited by Corbett and Van Wassenhove (1993:634), are of the opinion that OR/MS can be an invaluable strategic decision-making tool if applied correctly. Ittman (2009:sp) supports this view pointing out that the development of various problem-structuring methods such as “Soft OR” enables practitioners to address complex problems on a more strategic level. However, he agrees that more

should be done to make industry aware of the capabilities in this regard and believes that being more public about one's successes is the most convincing way to do this. Furthermore, the holistic systems approach necessary to develop solutions that address the "bigger picture" does not come easily to inexperienced practitioners not yet versed in the complexity of application.

The interdisciplinary nature of OR/MS.

Operations Research originated from an interdisciplinary platform, uniting scientists from many fields. The dominant paradigm of OR/MS is situated in the mathematical sciences because OR/MS uses actual mathematical models and quantitative logic to perform its task. This limits the field considerably, by excluding input from social and management sciences. William Pierskalla (President of the OR Society of America 1982 – 1983) stated in his article *Creating Growth in OR/MS* (1987:155): "If we are to grow, we must reach out to new areas of knowledge and to new approaches, and integrate them into our field". The need for this interdisciplinarity is becoming more apparent in the South African OR community as practitioners experience difficulties in approaching problems pertaining to poverty alleviation, policy making and social development.[5]

Complexity of problems in management.

Hansen, (in Kirby 2007:2) points out that evolving management needs resulted in problems too complex to be solved using existing OR/MS tools. New methodologies and techniques have since been developed to address complexity, but scientific thinking is still the point of departure.

OR/MS is in essence a positivist approach that provides quantitative objective realities, and prediction and control, free of subjective bias. The opposite method is a qualitative, naturalistic approach that allows for multiple realities and different viewpoints. Although there is certainly a place for a quantified approach, frustrations experienced in the OR community suggest that a deliberate inclusion of non-scientific approaches might result in solutions that are considerably more relevant and accessible. In the next section concepts and approaches of Design Thinking, as remedies to some of the problems identified in the previous section, are explored.

The nature of Design Thinking

Design is defined by Herbert Simon (1996:112) as the process by which we "[devise] courses of action aimed at changing existing situations into preferred ones". Design is an iterative human activity, directed at a specific outcome or solution to daily problems that arise (or challenges that need to be overcome). This human activity is based on a thinking process, with 'thinking' and 'doing' working in synthesis towards a solution. Charles Owen, distinguished Professor Emeritus from the Illinois Institute of Technology (IIT) in Chicago, explores the nature of Design Thinking and its application in several seminal publications (Owen 2006; Owen 2007). Owen views Design Thinking as complementary, and not antagonistic, to scientific thinking. Design Thinking is seen as the invention of "new patterns and concepts to address facts and possibilities", whereas scientific thinking is illustrated as the sifting of "facts to discover patterns and insights" (Owen 2007:17).

Some similarities in design and operations research exist. Both the fields of design and OR/MS are concerned with solutions for real life problems, although OR/MS is not always involved in the physical execution of the final solution. Solutions in OR/MS, as in design, have to be strategic and creative, not only tactical or operational. Owen (2007:17) proposes that there are two types of applied creativity – "finding" and "making". "Finders" work analytically and practise more scientific professions. "Makers" demonstrate creativity through invention and gravitate towards the fields of art, engineering, architecture and so on. He illustrates this concept by means of a two-domain model (see Figure 3).

[5] As frequently commented during presentations at the annual ORSSA (Operations Research Society of South Africa) conference held in Stellenbosch, South Africa (20 – 23 September 2009).

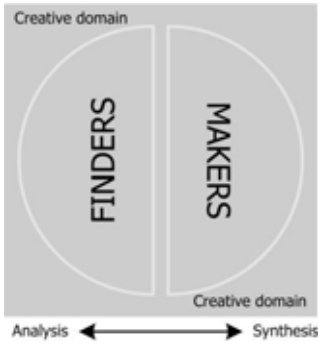

Figure 3: Two-domain creativity model. [Adapted from Owen (2007)]

Science is regarded as analytic in its use of process, and symbolic and abstract in nature. Design on the other hand is synthetic and real in nature. It must be pointed out that in science some areas overlap into the synthetic domain, and that design also has an analytical part. Owen (2007:17) also explains that these two domains can complement each other, although they are the obverse of each other.

Several other authors in design and other literature write about design thinking. Tim Brown of IDEO describes design thinking in the Harvard Business Review (2008:86), as "a methodology that imbues the full spectrum of innovation activities with a human-centred design ethos". Brown believes that innovation is powered by a thorough understanding and direct observation of human needs. The article provides several examples where design thinking has been successfully implemented to solve practical problems (Viljoen & van Zyl 2009:sp).

Beverland and Farrelly (2007:10) also state the business case for design thinking, and describe this as an embedded corporate culture that is cultivated in companies known for innovation and market leadership. There are a great number of companies successfully implementing design thinking approaches of which Apple, GE, Proctor & Gamble, Fisher & Paykel, National Australia Bank (NAB) and Maytag are but a few (Beverland & Farrelly 2007:11-16).

Characteristics of design thinkers and 'Design Thinking'

Various characteristics of design thinkers and Design Thinking are provided in the growing body of literature on this topic. It is clear from the previous section that Design Thinking is in the domain of "makers", and is a human process predominantly based on synthesis (and not analysis). A brief overview will now be provided before applying Design Thinking concepts to OR/MS.

Human-centred in focus/empathy. Design is client and user directed. Designers imagine the world from multiple viewpoints and imagine appropriate solutions for these viewpoints (Brown 2008:87). Design solutions are also adaptive to the evolving needs of its users (Owen 2006:4). Beverland and Farelly (2007:13-14) see designers as constant ethnographers, continuously observing the broader environment.

*Ability to visualise and communicate***.** Visualisation is one of the most important areas of design and Design Thinking. It is the ability to communicate visually, to reveal, and to make clear that what did not exist before, that makes a person a good designer. "Visual language is used diagrammatically to abstract concepts, to reveal and explain patterns, and simplify complex phenomena to their fundamental essences" (Owen 2006:4).

Optimism. Both Brown (2006:87) and Owen (2006:4) mention optimism as characteristic of Design Thinkers. Optimism is seen as the ability to believe that at least one "potential solution is better than the existing alternatives" (Brown 2008:87).

*Integrative thinking and a systemic vision***.** Design thinking is holistic, and based on integrative thinking. This means that designers see the big picture and develop holistic solutions that are inclusive of people, environments and technology. Designers can also work systematically with qualitative information – also called structured planning (Owen 2006:5). Owen (2006:5) describes this process as

a method of finding information and gaining insights from it, and then organising it optimally for conceptualization and eventually using the new insights gained to execute the solution.

*Generalist in nature – has the ability to collaborate and an affinity for teamwork***.** Designers can reach across disciplines to communicate efficiently (Owen 2006:4). Owen (2006:4) also states that a wider reach of knowledge leads to more creative inspiration. Designers can also not work in isolation - design clients become involved in the design process and therefore good interpersonal skills are an integral part of a designer's tool set.

Experimentalism and conditioned inventiveness. According to Brown (2008:87) design thinkers often develop ideas in entirely new directions, instead of focusing on only implementing small incremental 'tweaks'; and are more interested in the 'what' questions than the 'why' questions. The 'what' questions direct design activity to a design outcome.

Self-governing practicality. Owen (2006:6) recognizes that few other disciplines have the same freedom to dream, but points out that designers have the ability to govern "flights of fantasy with a latent sense of the practical". Designers therefore have the potential to match creativity with a realistic understanding of costs and functionality.

Design thinking concepts applied to OR/MS[6]

Several of the problem areas identified in OR/MS by Corbett and Van Wassenhove (1993) and Kirby (2007) can be addressed using design thinking methods and approaches. In the next section these possibilities are conceptually explored.

Engaging reality from a user/human perspective

The first step in the OR/MS problem-solving approach (Figure 1) takes real life factors and converts them into quantifiable variables. These variables are arranged in such a way that the problem can then be represented as a quantifiable problem. Enough (and relevant) information is required to do this and typical quantitative methods are used to gather the necessary information. These can be amongst others: interviews, questionnaires, and work, time and motion studies. Data mining and statistical analysis are used to advance knowledge of the situation when studying business processes and interactions between components of a problem. These techniques should enable the Operations Researcher to fully understand the reality. But in a post-positivistic world many different realities exist with many different viewpoints. Quantitative techniques are limited when it comes to understanding this plural reality, and mathematical equations produced by textbook trained researchers frequently prove to be inadequate.

The complexity of contemporary problems is one of the factors contributing the crisis in OR/MS. One way that designers deal with complex environments is through constantly observing and interpreting the environment. Designers are natural ethnographers, using ethnographic methods not only for studying a culture but also with the specific aim of developing a solution that will change the culture that is being studied. Using design ethnography as part of the initial problem formulation process would benefit the Operations Researcher by developing a deeper understanding of the relevant reality/ies. This will also ensure that the *right* problems are understood (Viljoen & van Zyl 2009:sp)

Graham Button, principal scientist at the Xerox Research Centre Europe (Cambridge Laboratory) (2000:328-330) uses an example of a production print shop to highlight what he believes to be the difference between descriptive fieldwork and ethnography that explores the 'how', 'why' and 'what' people do. Fieldwork-based studies reveal that production is enabled by the interactive effort of a number of people. Their efficiency is monitored (the time that they have spent working, for example) using objects such as production lists, scheduling boards, work tickets and so on. Fieldwork would describe how these objects are used, and can be used, to formulate a system that could improve the efficiency of the production print shop. Button (2000:329) comments on this approach: "… fieldwork that only describes what relevant persons do may well be missing out on the constitutive practices of

[6] This part was first presented by Viljoen and Van Zyl (2009) at the *2009 South Africa Institute for Industrial Engineering (SAIIE) Conference,* and has since been developed further for this Defsa conference.

how they do what they do, the 'interactional what' of their complexes of action". What you would be missing out on, is that the primary purpose of the scheduling board is not to manipulate data or calculate start and finish times. Instead, it exists so that personnel can get a picture of what is happening on the production floor with one glance. If a machine were to break, one look at the scheduling board can immediately allude to a number of different possibilities to solve the problem. This small insight will have a monumental effect on the development of a system for the print shop, the solution being much more effective than a mere automation of calculations.

Beverland and Farrely (2007:14) explain that designers are constantly seeking new inspiration from their wider environment and this makes them sensitive to changes in what the client needs, and therefore adaptive in their solution approach. Cultivating a culture of ongoing ethnography would ensure that there is a link between the solution being developed, and the reality/ies. Changes often occur during OR/MS projects and these changes result in a product-need mismatch (because of the rigidity of the OR/MS process) that could have been avoided if the researcher was alert to changes, and constantly seeking out opportunities for innovation (Viljoen & Van Zyl 2009:sp).

Maybe the most important Design Thinking characteristic that the Operations Researcher should have is the ability to have a human-centred approach to problem solving, as seen in design. Design is not only client directed, but also always has the consumer or user in mind. Human needs should be the driving force for developing solutions, and not the preoccupation with the tool as often identified in OR/MS literature (Kirby 2007:2; Corbett and Van Wassenhove 1993:630).

Figure 4 illustrates the changes in the approach when OR/MS becomes more integrative, with an awareness of the need for a constant solution-orientated focus. The barrier between tool and solution, or OR/MS options and management realities can be overcome by an integrative and iterative process where multiple realities are constantly considered, while the end goal is always in mind – a human-centred solution. It must be mentioned that the idea is not to discard well established OR/MS theories and tools, but to complement them with Design Thinking.

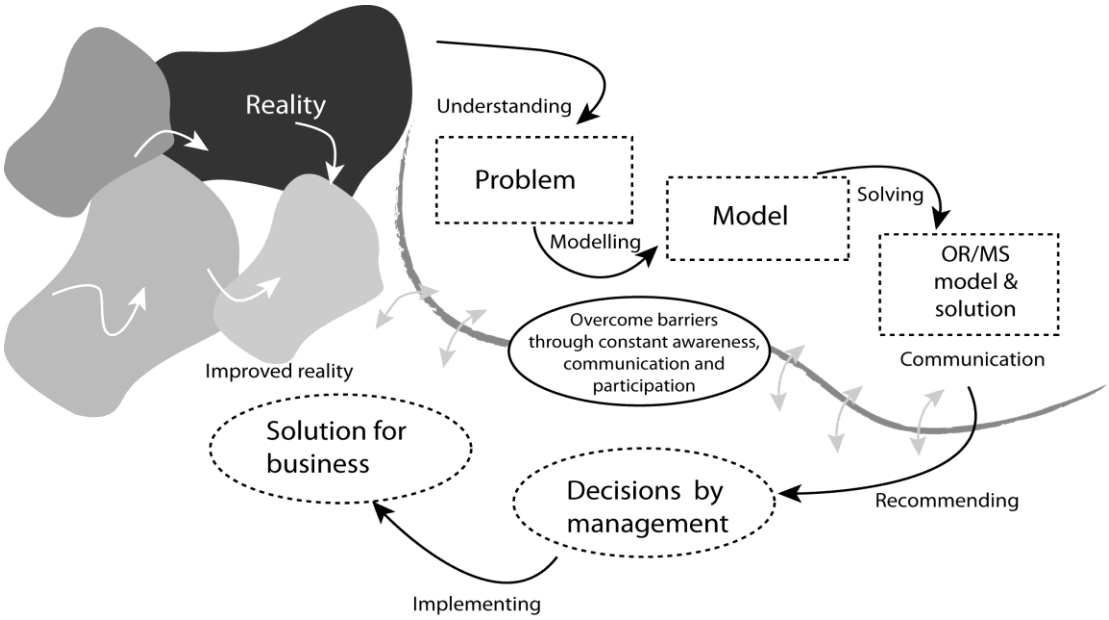

Figure 4: Visualisation of the 'new' OR/MS process [by Van Zyl en Viljoen]

Friendly OR/MS

Another problem area identified in OR/MS is the communication barrier between OR/MS practitioners and management (as illustrated in Figure 4). Corbett and Van Wassenhove (1993:626) studied this by studying articles related to the subject that have been published in the Harvard Business Review over the last six decades. One reason for the barrier between OR/MS practitioners and management, according to Corbett and Van Wassenhove (1993:631-632), comes about when the link between the

business problem and the mathematical technique becomes vague; and specialised jargon or terminology creeps in. This communication barrier results in a negative perception of OR/MS, and subsequently very little research is published in business journals about OR/MS. This is especially unfortunate as Ittman (2009:sp) underlines the importance of compelling OR success stories in creating awareness of the disciplines potential value.

Design on the other hand is a personalised heterogeneous process, building strongly on the relationship between designer and client. Bruce and Docherty (1993:406) cite Dawes' research of clients' reasons for choosing management consultants. According to them, the three most important criteria for contracting consultants are the reputation of the consultancy, its reputation within its specialist area, and personally knowing the consultant that would work on the project. Personality is also listed as the most common criteria considered when choosing a design consultancy. Designers immerse themselves in a problem so that they do not just understand the problem on an abstracted intellectual level, but also on a deeply intuitive level. This aids designers when challenged with new and varied design problems, which mean that they constantly have to cross barriers between clients and other participants in the process. It is the designer who immerses him/herself in the client's situation, and not the other way around (Viljoen & Van Zyl 2009:sp).

One of the other potentially useful characteristics of design thinking for OR/MS is empathy, and this refers to the ability to observe reality from multiple viewpoints. Empathy can in turn lead to imagined solutions for these multiple viewpoints (Brown 2008:87). It becomes clear when comparing Figures 2 and 4 that the process moves away from being linear, with a logically structured singular viewpoint, but starts with multiple realities that need to be improved. These realities encompass different viewpoints. Management might for example have a completely different viewpoint than that of staff.

The perceived bad external reputation of OR/MS is also reflected in internal dialogue. Questions are asked about the value proposition offered by OR/MS and its products. It is the brand or perceptions of OR/MS that has come into question. Beverland and Farrelly (2007:15) quote Michael Smythe who says that "[a]n organization is known by the way it manifests itself through its products and services, its visual communications and its operational environment". Finding one brand to unify the entire discipline of OR/MS is impossible due to the varied nature of OR/MS but the question of brand *is* critical and must be asked wherever OR/MS is practiced, but more importantly wherever OR/MS is taught (Viljoen & Van Zyl 2009:sp).

During a panel discussion at the annual ORSSA conference[7], regarding the future direction of OR in South Africa, panellists sought ways to define and communicate the *brand* of OR. Panellists believed effective marketing is essential not only to attract prospective clients but to source new talent from a national pool of high school graduates that would otherwise be oblivious to the existence of the discipline.

Visual thinking and communication

The third area for discussion is the necessity of an increased focus on visual thinking as part of the OR/MS process. OR/MS presents the client with possible options based on quantified scenarios and models. Very little participation between the client and the Operations Researcher takes place during the development of these models, with OR/MS practitioners working on a need to know basis. Important variables are therefore often overlooked or not understood from the viewpoints of others. The lack of a common language is one of the fundamental causes for the barrier between the OR/MS practitioner and participants from other disciplines or business clients. For example, when both take part in the development of OR/MS solutions, many of the OR/MS tools are beyond comprehension to the other participants. This is particularly relevant in South Africa, where many new managers still suffer from the disadvantage of a sub-standard educational system caused by Apartheid, where maths and science were sidelined (or at least a high enough standard was not taught). South Africa is also challenged with a multicultural and multi-lingual society, contributing to a more complex system of communication. Visual thinking and visualisation, both areas associated strongly with design thinking, offer ways to overcome these communication barriers, not only during the presentation of models, but also during the generation of possibilities.

[7] Held in Stellenbosch, South Africa (20 – 23 September 2009).

Dziersk (2007:42) discusses the importance of visual thinking when designers try to explain strategic concepts to managers. Unfortunately, very few OR/MS practitioners have ever been exposed to, or been taught, visual thinking skills. OR/MS might become far more accessible if understood, and this in turn can lead to improved, positive perceptions.

Solving the bigger picture

The most prevalent contemporary world paradigm is that of systemic integration. Kirby (2007:2) cites Ackoff who states that "[a] system is more than the sum of its parts; it is an indivisible whole. It loses its essential properties when it is taken apart. The elements of a system may themselves be systems, and every system may be part of a larger system". It has become very difficult, if not impossible, to break problems down into unrelated components. OR/MS practitioners are therefore challenged to look at the bigger picture and create strategic solutions for a far more complex environment. This complex environment not only includes quantifiable variables, but also qualitative aspects such as human perceptions, needs and behaviour. Special skills are therefore required to find ways to incorporate the element of human behaviour into OR/MS models. Such an approach can be found applied by design thinkers who have an ability to work systematically (and with the goal in mind) with qualitative information.

Big picture thinking also implies that more than one solution exists, and that solutions need to be adaptable for current as well as future use. This fits Owen's idea (2006:4), that one of the Design Thinking characteristics is the ability to adapt, or, in his words, 'a bias for adaptivity'. The fast pace of change also necessitates adaptive thinking.

Possibilities and implications for design education

This paper has so far discussed the crisis in OR/MS, a discipline seemingly as far removed from design as you can get; but on closer inspection, many areas of common ground are found. Both these disciplines start with a problem defined by reality, both work through a process of understanding and generation of models or conceptual solutions, and both share a common goal – an improved situation or reality.

The big difference is in the way solutions are generated. In OR/MS an objective analytical approach is used, by developing quantified tools and models to plan courses of action. Designers work alongside the client and end users to develop solutions based on a structured approach that also includes the input of intuition and tacit knowledge. The way designers think and work is defined by Nigel Cross, a seminal design researcher, as "designerly ways of knowing" (Cross 2007:1-2).

Designers feel comfortable working in multi-disciplinary contexts where better design outcomes are achieved through team-work and collaboration (Brown 2008:87; Cross 2006:5). The nature of design practice is by default multi-disciplinary in nature (multi-disciplinary collaboration takes place when people from different disciplines work together). The question that should be asked is whether it is possible to teach non-designers Design Thinking. One way to generate this culture is to compel non-designers to work in multi-disciplinary teams, where team members from disciplines such as OR/MS can learn from designers and design thinkers. It must be pointed out that for this approach to work, designers have to be aware of their own thinking abilities, and they must be mature enough to add value (i.e. to understand both their weaknesses and strengths, and to optimise their work according to this understanding). One other multi-disciplinary way forward is research collaboration, where theorists from different disciplines work together to research new opportunities and to develop interdisciplinary hypotheses.

Interdisciplinary activity is different from multi-disciplinarity and takes place when disciplines borrow methods, theories and concepts from other disciplines; and most importantly use these methods, theories and concepts to lead to some form of synthesis. Lattuca (2001:116) differentiates between different types of interdisciplinarities. Informed interdisciplinarity can be regarded as partial- or crossdisciplinary in nature. This is the intentional borrowing of methods. True conceptual interdisciplinarity strives for systematic integration, obscuring the separate contributions of the individual disciplines (and blurring the line that distinguishes the two disciplines from each other). It is in essence the instrumental borrowing from one discipline to aid in the development of another

discipline. Such interdisciplinary development ideally requires knowledge about both disciplines, and poses special challenges for educational approaches since what works for the one discipline would not necessarily work for the other.

Owen (2006:5) explains how Design Thinking skills are taught to designers. He explains that Design Thinking is a skill that is almost unconsciously acquired by designers as tacit knowledge when they design projects. But a completely different set of educational methods needs to be developed to teach non-designers suitable and useful design methods. Cross (2007:038-047) views design as a natural form of intelligence that is, to some degree, possessed by everyone. The challenge is to harness this natural ability through suitable educational approaches to the advantage of the discipline of OR/MS.

Conclusion

This paper explores two broad areas. Firstly, Design Thinking is proposed as an operational and conceptual solution to the problems experienced in OR/MS. Secondly, the paper explores the implications of such interdisciplinary developments for design education. The opportunities that these developments provide for design education as well as the discipline of design are obvious, but at the same time they clearly pose a challenge. Relevant research and the development of practical education approaches are paramount to the development of ways to integrate Design Thinking and OR/MS to position the discipline so that it can make meaningful contributions to the increasingly complex problems faced by industry and society.

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INTERDISCIPLINARY THEORY TEACHING: CAN ONE SIZE REALLY FIT ALL?

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Abstract

The Faculty of Art, Design and Architecture at the University of Johannesburg has diverse departments ranging from Architecture, Fine Arts and Multimedia to five different design disciplines. After years of being housed in geographically dispersed locations the faculty has recently moved into one building, and is in the process of consolidating and rationalizing the teaching programmes. One area of rationalization has been identified as the theory programme, and we have been assigned the task of identifying theoretical material and drawing up a single teaching programme that most departments could subscribe to.

This paper will begin by providing a breakdown of what has been taught thus far in the first year pilot programme of a single offering for the faculty and how it was received. Consideration will also be given to the problems we face in identifying curriculum content for subsequent years. The major concern thus far is that our material is not discipline specific enough to fulfil the requirements of the different departments. Previously most departments have concentrated on a policy of vocational teaching with specific practical outcomes reflecting the nature of both design and art practitioners. The theory has therefore been taught by individual departments with very specific content and outcomes.

Furthermore the course that is currently being piloted, although conceptualized as an art and design history course, employs a methodology that is shifting from a previously linear historical approach to an approach more comparable to that employed in the visual culture studies. This means that critical thinking and deconstructive methodologies of visual analysis are encouraged in students, rather than the acquisition of a cohesive historical knowledge. This does present another problem however, since some design departments are of the opinion that students need an encompassing knowledge of the major historical developments in design history as a basis for their studies. Many theorists such as W.J.T. Mitchell, Nicholas Mirzoeff and Stuart Hall have recently questioned the notion of history as a linear programme of progress. For the most part it is now commonly accepted that the idea of history excludes marginalized histories in its European-centric approach. The question then arises, where does history find itself in this new curriculum? Is it possible to provide students with a sound historical knowledge base, and not relapse into dangerous assumptions about the validity of linear approaches?

This paper will investigate whether indeed one can manufacture a "one size fits all" course. What strategies could be used to overcome diverse expectations of content and methodology while still providing a solid grounding in the theoretical tools and analytical/critical approaches required by all students of visual culture? Can theoretical content and specific historical content be adapted and incorporated to suit each discipline without maximizing teaching contact hours? These and other questions addressing both content and practicality will be unpacked and conclusions will be drawn about a possible interdisciplinary solution to be implemented as a pilot programme for second year students in 2010.

Key words*: curriculum, rationalization, design theory, art history, interdisciplinary.*

The purpose of this paper is to investigate and question a course that has recently been implemented at the Faculty of Art Design and Architecture at the University of Johannesburg. The course has thus far been unofficially titled Contextual Studies, and is in some respects similar to a history and theory of art and design course. This study will outline the premise for the current first year course, which is based on the notion that diachronic Western history (of art and design) is problematic as curriculum content. A brief outline of the current first year course as well as problems that have arisen from the course material will be given. The proposed second year course will also be outlined along with criticisms that we have encountered. In short the problem with the course is that it replaces a series of history courses, but that its very premise problematises the notion of history. Departments that partake in the course feel that the teaching of history remains imperative to their programmes, so the

Contextual Studies course is in the difficult position of attempting to employ both historical methodologies and alternative non-linear approaches to the notion of the history of art and design.

The first year Contextual Studies course was conceived of as a course that provides students with approaches to the history and theory of design and art. As such this new subject caters to six different disciplines, Industrial Design, Graphic Design, Multimedia Design, Interior Design, Jewellery Design and Visual Art. Previously the course consisted of material that was taught in a chronological manner in terms of the European conception of the history of art and design. The notion of design history is perhaps problematic in itself, however, since it has often been seen as an extension of art history. In this sense its methodologies of inquiry could follow the same approach as that of traditional art history, as outlined by theorists such as Panofsky and Wolfflin or Gombrich. This is problematic though, because design was not formulated as a distinct area of aesthetic inquiry at the time when these theories were conceived (the Enlightenment). Thus the idea of design history as another version of art history is awkward.

Furthermore the idea of history itself, has in recent educational and research circles been questioned. This applies to the notion of Western history as having a beginning and an eventual "end", running from antiquity to contemporaneity (Elkins 2005:45 – 49). Following such a view of history, art history is conceived of as the chronological unfolding of movements and trends within art (one may refer to the "history of progress"[1] as an example of this modernist notion of a cohesive and complete history). The idea of such a grand narrative of art history has been contested by thinkers such as Stuart Hall and Raymond Williams (Dikovitskaya 2005:79), but also in a more expansive sense by Michel Foucault, Jean Francois Lyotard and James Elkins.

Many thinkers interested in the notion of history investigate it from the viewpoint of groups that were marginalized by this version of history, as a way to re-think the problematic of the grand narrative. Feminist thinkers such as Griselda Pollock (1988:66) purport that modernity was invented by European men in places such as nineteenth century Paris. Because of socio-cultural ideology women were not in the position to feature as voices within the development of a movement such as modernity[2]. Ultimately history in this sense is exclusive, and is based on the observations of privileged European men. To contemporary designers the principles and debates that emerged from modernity are still of utmost importance however, but it is also questionable how one should regard it. Where do the values of modernity leave contemporary female designers? Are they to become complicit in their own historical exclusion by taking part in a discourse that in its conception fundamentally omitted the female gender?

Similar questions arise when one considers other markers of cultural difference such as race. How do Africans feature in Western history? Where should African design position itself? In a recent discussion with first year Industrial design students in a class on colonialism they assured me that Scandinavian countries still dominated the design world in their field. Where does this leave them? One student replied that he would aim to be an African designer of European standard. This may sum up the problem with the "history of progress". It assumes that Europe is the standard, and it is that assumption which implied the justification for the power relationships between European men and the Others they encountered (such as in colonial encounters).

In recent years there has been an upsurge in African design and art in the international arena. This is not only linked to much global political awareness of Africa, but also has to do with the notion that Africa has been excluded from many aspects of society in the West, such as education, economy and academics. Exhibitions such as *Africa Remix* in 2007 supposedly began giving a voice to a continent

[1]The "history of progress" is discussed by Jurgen Habermas in his seminal discussions on Postmodernity and Modernity, although that is not his terminology. It conceives of history as a European project hinging on the ideals of progress in knowledge and the social and moral betterment of society which is related to the Enlightenment (Habermas & Ben-Habib 1981: 4). Adorno sees such a totalizing view of human progress as problematic, and foreshadows the deconstructionist thinking of authors like Lyotard in his rejection of such a view of history (Adorno in Phelan 1993:607-610).

[2] Modernity is here understood as it was discussed by thinkers such as Baudelaire, Benjamin and eventually Habermas, as rooted in the revolutionary thinking of the Enlightenment towards progress, freedom, rationality and individuality (Habermas & Ben-Habib 1981).

that has been excluded from Western art history, except for being seen as exotic and mythical. But what is the correct conception of history that must now be established? How can we investigate and teach history in Contextual Studies without ascribing to the flawed ideologies of modernity?

Lyotard's discussion on postmodernity (1984) may be helpful in this regard. He seems to be of the opinion that the only way forward is through a process of deconstruction. This means examining what was taken for granted as historical fact and deconstructing the ideologies inherent in these "facts". He advocates a critical approach to the notion of history. For him there are many histories, but they are contradictory and a cohesive version will never be established. In other words, excluded voices cannot simply be added onto history. W. J. T. Mitchell, Malcolm Barnard, Stuart Hall, Nicholas Mirzoeff and James Elkins are among those who may be seen to broadly align to this approach. This is one example of an approach in dealing with products of design and art. According to Dikovitskaya (2005:78) thinkers like W. J. T. Mitchell believe that visuality is best approached not by the use of specific methodologies (such as that of art history), but rather a set of tools. A deconstructive approach is one such tool that a student may apply.

Based on this model it is the intention of the first year Contextual Studies course to provide students with the skills to develop such an approach to the design and art disciplines. Students are encouraged to think and write critically about any design or artwork, without having to rely solely on historical knowledge. Visual analysis is a large part of the process, and it concerns itself with the supposed meaning behind cultural products. The course is divided into four units, the first of which is an introduction to "visual culture studies". Most of the authors I have cited thus far work in this new field, and it is sometimes called visual studies as well. Visual studies or visual culture studies is not the same as design history. This relatively new field does not limit itself to the nature of the cultural products it addresses however, but rather embraces fields and disciplines not traditionally covered by art history, such as the mass media (Tobing Rony, in Dikovitskaya 2005:74). Furthermore it aims to "chart new inventories and write local histories" in terms of a contemporary perspective around issues that are current (Dikovitskaya 2005:75). The field is interdisciplinary and lends itself to investigating the histories of art and design, although it is neither. This was problematic for many of the departments at FADA as it was felt that visual culture might not be (or sound) inclusive of design in terms of the study of space and objects. The concern arose that the approach may focus too much on the visual (at the expense of disciplines concerned with space), although I would not agree. The debate is unresolved, but as a result the term "visual culture" is no longer used in the course material. The fundamental thinking behind the approaches to visual studies remains relevant, however, in the methodologies that students develop and employ in Contextual Studies. Much of this hinges on the significance of acts related to representation.

Current first year programme

Before discussing the importance of meaning further it may be helpful to explicate the structure of the current first year course. There are four units of study, governed by four themes taught across the year. Within each unit there are two contact sessions per week, a lecture to all the students, introducing the major theoretical premises of each unit of study (in about seven weeks per unit), and a tutorial elaborating on the lecture and focusing on reading material which is prescribed. Each unit has about two texts that are prescribed readings. Every unit is assessed through two assignments, a smaller one earlier in the term, and a longer four-page essay at the end of the term. Since many students are not familiar with academic writing there is also one contact session per week of academic support that assists students with essay writing. At the end of the year, students will write an exam.

The notion of representation and meaning was introduced to first year students in the first unit of the course, titled: "Representation (looking, writing, image and text)". The unit was aimed at giving students a brief history of representation, which seems chronological, but the emphasis was placed on how representation lead to the construction of meaning, rather than the facts of the historical development of representation. Thus the idea is not to abstractly discuss theories but to use historical and contemporary material to actively practice the theory. Instead of providing students with facts to remember (as the idea of legitimate history as grand narrative would), they are engaged in questioning what they encounter (which were historical artworks, designed objects and spaces). Texts by Stuart Hall and Malcolm Barnard were assigned.

Despite the intention of using historical material as departure point for this approach to the subject some concerns surfaced. The interior design department amongst others was concerned with the lack of background knowledge provided to the first year students. Would there be space in the Contextual Studies curriculum to investigate technical histories such as architectural history rooted in antiquity and Roman architecture?

The second unit of study was conceived around the theme of the modern city, and titled "The city as visual space". Urban space is an interesting background for the introduction of some modernist theory, focusing on Industrialisation as well as gender theory. Many authors have seen a correlation between modernist thinking and gender roles as it played out in the Impressionist paintings of Parisian life in the nineteenth century. A text by Griselda Pollock (1988) was assigned to the students, as she focuses on the division between public and private space in Paris at the time, and how women were relegated to the domestic realm of the interior and men developed sophisticated manners of interacting with the spectacle of the city, such as the discerning wandering gaze of the "flâneur". Another text by Nancy Forgione (2005) focusing on the modernising of Paris during *Haussmanisation* was also assigned.

Since the first year course is introductory and serves to provide students with approaches rather than facts I have aimed to avoid well-defined movements within art and design history. To my mind it makes more sense to introduce students to methodologies and ways of thinking, rather than established theories that may lead them to think of these as absolute truths. Thus the emphasis of the unit was on ideologies of space, and not on the technical and aesthetic theory of the built environment. It seemed as if including technical histories in the course was not really possible in this unit, although there is much discussion of Haussmannisation[3] in the material.

In an attempt to provide students with more discipline specific visual material in the second semester the third unit for the year was simplified to apply to Western encounters with Africa. The unit was titled "Encountering cultures: Africa", and the sub-theme for this unit was colonial theory. A text on colonialism from "Selves and others" was chosen (Holloway, Kane, Roos, Titlestad 2004), as well as a text by Stuart Hall. Both books are written for students and introduce seminal concerns in visual studies. The essay question for the unit was discipline specific, and focused on colonial stereotypes of the "savage" African as found in contemporary design.

When the learning guide was distributed to students some were a little outraged, however, and the concern with specific histories resurfaced. How could they find colonial stereotypes in interior design or industrial design? Through much discussion and visual analysis, examples of stereotypes were found in every design discipline and students who were concerned about finding discipline specific material to write about seem to have succeeded.

The fourth unit of study focuses on digital culture and the motif of the cyborg specifically in the film "Blade Runner" by Ridley Scott. The unit, titled "Blade Runner technological dystopia" takes as premise the importance of technology in the manufacturing process in much of industrialized design. Technological progress has throughout modernity been seen not as only an improving force in terms of lifestyle and industry, but also as potential threat to the humanity of society (Sparke 2004:139-149) . This is embodied by the "replicants" in Scott's film. A text by Douglas Williams (1988) was selected which combines the approaches applied thus far in the year, ideology criticism with a focus on difference and gender. The second reading by Michael Webb (1987) discusses the notion of the city as monstrous motif in science fiction films, with specific reference to the set design of the film. The essay question asks students to discuss the notion of dystopia as theorized by Williams, as well as to find evidence of the specific themes Williams proposes within still images from the film.

Modernity as various theories has been central, though implicit, not explicit, to the course thus far. In an interview with Thomas Gunning, Dikovitskaya (2005:79) writes that he theorises the alteration of the modern experience as intrinsic to the field of visual studies. This is due to the proliferation of visual media, since the inception of industrial reproductive processes such as photography and film, which implied that the visual transgressed the boundaries of what was traditionally seen as culture (in terms

[3] Baron Eugene Haussman's project of urban renewal in nineteenth-century Paris which is discussed in some detail by Forgione (2005).

of art). Images became abundant and available to many people. This is also sometimes called the pictorial turn (Mitchell 1994: 11-34). In contemporary terms, since modernity, visual culture has become both the visual experience and the record of that experience, which means that one can study it in a manner different to those methodologies which art history favours. This also relates to the idea that meaning is in the visual object itself, but in the experience of that object. In this sense, an historical movement like modernity remains important to a field such as visual studies, although at the same time it must be contested, as some of its premises become problematic.

The aim of the first year course has been to provide students with basic tools towards such an approach to the history of art and design. As we have outlined thus far, the history of design can no longer be thought of as similar to the history of art. History itself should be questioned. When students have acquired the capacity to question cultural products efficiently they are ready for the proposed second year course, which deals with seminal movements and developments such as Modernity itself.

Proposed second year course

As an art historian and the person responsible for a large part of the art and design history teaching in the faculty I was asked to join Landi in planning the offering for second year Contextual Studies. This was an attempt to include specific historical content and simultaneously ease the transition between the old diachronic approach to art and design history and a new thematic approach, comparable to that employed in visual studies. Our challenge lies in accommodating the requirements of all the different disciplines, who were asked to present us with lists of historical material or specific information that they consider vital for inclusion. We are further constrained by the Dean who does not wish us to present streamed offerings (i.e. a shared offering for the first half of the year and then optional modules aimed at the different disciplines for the second half of the year) which was our first suggestion.

Considering our mandate was to provide a single offering but to make it relevant to each discipline I suggested that, as in first year, there should be a single lecture given to all students once a week. This lecture would consist of a historical overview of the time period under discussion. It would include an introduction to the main theorists, the social implications, political changes and the effects of all these aspects on visual culture. While visual examples should be referred to as illustrations of the effects of these theories and historical events, this should not be a long and involved visual history but a theoretical background from which to approach the visual history provided in the individual lectures. The lectures would also introduce relevant readings to the students and time should be allocated for unpacking and explaining the readings if necessary.

There would then be a second set of classes each week which would be discipline specific individual lectures concentrating on the analysis and discussion of visual examples. Such discussions would relate these examples to the broader social and theoretical context that was introduced in the main lectures but would also take into consideration things like building innovations and interior styles for Interior design, for example, or the development of practical objects and technological innovations for industrial design, or stylistic developments in painting and sculpture for Visual Arts. Tasks such as essays and projects would be allocated and dealt with during these lectures where the prescribed readings from the main lecture could be applied to analyses of specific examples. Each of these lectures could thus be tailored and adapted to the requirements of each course.

At this stage we are proposing a loose overview of possible modules for second year that takes into account much of the material that is presently being taught in the various disciplines and which was requested by each department. Firstly, to make up for the lack of ancient history in first year, and in response to suggestions from the Interior Design department, we outlined a module on “The role and influence of Classicism, from Ancient Greece to Post- modernism.” This covers an investigation of the ‘canon’ resulting in idealism, and the impact this has had on aesthetics from ancient Greece through to the present day. It also investigates social implications such as the way Classicism is used to enhance the dignity and grandeur of the state and religion in architecture, painting, sculpture and design throughout the ages. The module would culminate in an overview of the ironic re-use of classicism in postmodern art and design.

In practice, certain elements of Classicism would be emphasised, where relevant, for the different disciplines. Interior Design, for example, could begin by understanding the attributes of the classical

orders, and then investigate the way classical architectural vocabulary and sculptural decoration has been used over the years, adapted through various classical revivals, to imbue government buildings with official stature and gravitas, or provide private homes with an air of grandeur. Classical proportions in ancient architecture have also inspired modernist architectural manifestations such as modular proportion in Le Corbusier's architecture and subtle references to a Classical Greek temple can turn an industrial building such as Behren's *Turbine Factory* into a temple to the all powerful 'industrial cult' in Germany.

Visual Art, on the other hand, could consider the use of the Classical ideal, both in its original manifestation and its revival during the Renaissance, to produce images of timeless perfection. Hauser (1977:82), when discussing Renaissance idealism in *The Social History of Art,* notes that "Classical art describes this elite society as it wants to see itself and as it wants to be seen." A striving for order, permanence, calm, stability and continuity is seen in the lack of transient emotions and physical perfection of Renaissance Classicism. There are ongoing references to classical perfection throughout art history including examples of contemporary art that could be analysed as part of this module. It is not possible, within the scope of this paper, to explain this application for each of the disciplines in detail, but hopefully it is clear from these examples how the emphases can shift to suit the requirements of each course.

The second proposed module provides an overview of "The Enlightenment and the Industrial Revolution". This module begins with the search for scientific knowledge and philosophical discussion in the 18th Century and the effect this had on the visual and applied arts. Two events in particular, according to Mary Pratt (1992:15), changed the understanding that the European elite had of themselves and their relation to the rest of the world. The first event was the publishing of a scientifically based biological classificatory system by the Swedish naturalist Carl Linne (known as Linnaeus in Latin), called *Systema Naturae* in 1735[4]. The second was the La Condamine scientific expedition, also in 1735, which set out to determine the exact shape of the earth. Both of these events led to a fascination with collecting and classifying scientific information. Linnaeus in particular created structures of knowledge based on identifying and naming, thus placing the natural world into regulated easily accessible information aimed at the educated European (usually male). The intense public interest they aroused also led to the proliferation of other studies in classifying the world and its peoples during the later 18th Century and the hunt for knowledge, often in unknown lands, became a popular European pastime.

It is important for students to understand that this thirst for knowledge, order and classification resulted in an attempt to control the world through access to learning (an access that was carefully delineated by a scholarly knowledge of Latin). One also cannot imagine the Industrial Revolution with its explosion of scientific knowledge, colonialism, technological innovation and huge social change without the Enlightenment preceding it. The 18th and 19th Centuries are thus the source of the structures that have dominated our learning institutions and which are now being questioned in postmodern paradigms of teaching practice, as mentioned earlier in relation to the field of visual studies and the work of authors such as Mitchell and Hall. This can be identified as the foundation for the hegemony of elitist Western knowledge systems with their linearity, rationality, intellectual logic, patriarchal and colonial domination and the philistinism evidenced in Victorian attitudes towards 'the other' thanks to so called 'scientific' developments like social Darwinism. It later developed into the Modernist conception of a unified history as discussed earlier in this paper.

Of course the Industrial Revolution is also the catalyst for Modernism, which is the topic of the third module and covers the historical, social and theoretical contexts and various manifestations of Modernism from its inception in the late 19th Century onwards. This module could also include the shift towards the postmodern condition (from the mid 20th Century) and the resulting manifestations in visual culture.

Wherever possible and appropriate, the lectures on the proposed topics should also include a discussion of the effects and manifestations of each theme within a South African context. For example, the beginnings of colonialism and doctrine of difference that is investigated in the module on

[4] This was a descriptive system designed to categorise all plant forms on the planet according to their reproductive parts.

18th Century Enlightenment and the Victorian era, ultimately gave birth to the ideology of apartheid. Such connections must be identified during the course to ensure the relevance of historical material. We had proposed a fourth module covering ecologically aware design and architecture, so called 'green design', but there is so much material to cover in modules two and three that we are considering the necessity for expanding these sections instead and breaking them into three separate modules for the final three terms of 2010.

Having debunked the notion of a diachronic historical approach at the outset it is somewhat ironic that our proposed course appears to develop chronologically and is also based largely in western ideas of linear progression. However the notion of cause and effect has to be taken into consideration when dealing with a history of ideas culminating in modernism, which is, ultimately, a history of western logic, reason and knowledge, and which is intrinsically tied to a chronological development. Our suggestion is, therefore, to allow the history of Modernism to develop along suitably modernist lines and rather to concentrate on the offshoots of the postmodern era in third year as thematic self-contained modules.

For example the module on ecological design engages with the later effects of technology on the environment and the introduction of 'green design' to counter this (beginning with 'design for need' and the theories of Buckminster Fuller and Victor Papanek and moving on to more recent theorists in this field). Examples of activist art and design that is aimed specifically at raising awareness about ecological problems (and resulting social problems) can also be covered here. Third year topics might also include African studies, Postmodernism, Feminism, Colonialism / Post-Colonialism and Globalism (which would include hybridity/identity crises etc.). It is not yet clear whether we will be asked to construct a single offering for third year or whether this will remain discipline specific throughout. It will possibly depend on the success of the second year offering and the perception of whether we have managed to cover the knowledge that is considered necessary for each course.

Thus far we have already received some criticism for this proposal. An example of the informational lacunae identified in our suggested course was that certain disciplines required a more technical knowledge of their area of study. In response I would suggest that the discipline specific lectures would be devised in such a way as to cover any specific technical as well as historical knowledge required, as is the case in the present history curriculum. Such criticism arises from a lack of understanding that a historical course arguably needs to engage with broader social issues and to engage with belief systems in an understanding of the visual output of any particular society or time period. Nothing is created in a vacuum but rather as a response to a multitude of influences, so both social *and* technological developments must be taken into consideration when looking at material culture. This is in keeping with the visual studies methodologies outlined as possible strategies earlier.

Having said this, we do understand that one cannot impose a certain curriculum or structure on any course so the formulation of a "one size fits all" offering is fraught with difficulties. The decision to take part in this programme rests with each head of department who is free to decide on appropriate material for their students. We are also attempting to work against an entrenched system of teaching that is based on the Technikon emphasis on practicality and linear history rather than the more theoretical and thematic approach favoured by University systems. We at the University of Johannesburg are officially a 'Comprehensive University' and are still offering both diplomas and degrees. In our theory offering we have therefore tried to steer a middle course by raising the theoretical input while simultaneously catering to specifics for each discipline. Perhaps we are trying too hard to be all things to all people, but I do think it is possible to cater meaningfully for the requirements of today's students who live in a postmodern world (where everything one needs to know can be 'Googled' instantly) and who are perhaps more inherently fluid in their approach to knowledge than those of us who were taught in the old linear manner.

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