

# **DEFSA-Conference 2006 Research Paper**

**Keith van Winkel**

**St Andrew's College  
Arthur Cotton Design and Technology Centre**

**PO BOX 182 Grahamstown 6140  
k.vanwinkel@sacschool.com**

# **Designosaurus HESA: Laying bare the bones of a dilemma**

## **Introduction**

I believe we are living in a time of opportunity. Democratically established and constitutionally sound, South Africans have created a platform for opportunity on an unprecedented scale. Within this framework South African designers are beginning to show their mettle. Over the last few years we have seen some exciting work from both established and emerging designers in a variety of disciplines from fashion to product design. We have always been inventive creatures. We are continually solving problems and developing new technologies at an astounding rate. We are forward-looking beings set on breaking new frontiers. We have the ability to predict many of our future needs. We are also able to determine what options we have at our disposal to rectify our problems. We teach our children about our problem-solving techniques, our technologies and our solutions to the issues of the future. And our inventiveness can sometimes surprise. For example: the potters wheel; metallurgy; vaulted domes and arches; the bathroom; the drill bit; the arched bridge; steel; the pulley; poison gas for use in warfare; the lighthouse; concrete; the air gun; the differential gear system; modern principles of mathematics, science and astronomy... these were all invented or discovered before Christ was born. Flying machines including the helicopter; the submarine; the compound microscope; the first suggestion of travel to the moon; the universal joint; photography; the telephone; the electric motor; tar roads; the modern house; the flush toilet; and casein plastics were all invented and in use before 1900. [1]

We live in an opportune time to embrace new directions, new intellectual growth and social patterns. It is a time in which creative environments are being established where new technologies are being balanced with new mindsets and visions. Many are already on this path and are achieving national and international success. The path of human development and our spur to invention has lately made massive leaps since the birth of art, design, technology and style as Lyall Watson so eruditely observed, happened some 1,500,000 years ago when the first beautiful oval-shaped flint stone hand axe was formed. George Dyson captured the essence of our link to that distant moment when he said: "The obsidian flake and the silicone chip are struck by the same campfire that has passed from hand to hand since the human mind began."

You only have to understand the astounding rate at which information acquisition is being captured to gain a proper perspective of the real pace at which life is now evolving. Stephen Hawking in his book "The Universe in a Nutshell", [2] writes of the development of language as being the most important step in human history. He gives us some insight into the information/knowledge age we live in and the rapidity of its growth. He writes that it is a known fact that early human DNA had an evolutionary updating rate equivalent to about one computer bit per 100 years. However when language was

developed this rate rapidly increased to about *one bit per year* because information could be shared rapidly without waiting for the very slow process of random mutation to take place. Today we publish around 200,000 new books per year which is equivalent to a new information rate of 1,000,000 bits per second. Even if you assume that only one bit per million is useful new information that would be equivalent to 100,000 times the speed of evolution compared to that of our ancestors. Is it any wonder then that the exponential growth in the capability of the computer chip to process information has grown from 3,500 calculations per second in 1972 to 28,000,000 in the year 2000? In 2003 that figure grew to around 50,000,000 and by 2007 it will be around 500,000,000 calculations per second. And yet our biggest and best computer still cannot match the brain of the simple earthworm let alone our own. We are in the midst of constant and rapid change and our students are products of this age. Geoff Hollington describes this phenomenon aptly when he says, "One lousy computer on a desk in Soho will, in about 4 seconds, do more maths...than the whole of humanity could manage pre-1950". [3] We have continued building on the erudition and fluency of our forebears and are making great strides and breaking new frontiers daily.

### **Footsteps in stone**

The new initiatives recently taken by government for primary and secondary education in this country are a substantial achievement and have laid foundations intended to address some of the problems of our inherited past. Within the Further Education and Training band known as the FET a number of entirely new subjects have been introduced and students may now select from these subjects to constitute their profile of seven subjects for Matric. The subject, Design is one of these and for the first time it has been given equal status with all the older, more traditional subjects like Mathematics, Languages and the Sciences. The curriculum for Design is purposely open-ended and creative allowing for innovation and experimentation and even though there are the inevitable problems and critics associated with it, it promises to be the vehicle for some exciting new design initiatives. The Design curriculum specifically addresses issues of creative capability such as those currently in evidence in the USA where graduates from some of the top Design Institutions have been found to be wanting. To quote from a recent publication: "American design graduates are...weak in all basic areas except proficiency with information technology...without a grasp of materials and manufacturing processes and...lacking in intellectual inquiry, form development, drawing, design implementation, clear writing ability and knowledge or curiosity about art, architecture and culture in general". It goes on to say, "...design courses fail to address...the educational thought process: problem-solving, dealing with change and grasping new issues". [4]

The FET design curriculum requires that students become proficient in the areas of knowledge, skills, values and attitudes associated with accepted principles of design in force today. They are learning to apply their designing skills in practical ways to real life simulations. Simeon Jupp, design director at Dyson UK, where the famous Dyson vacuum cleaner is produced, has this to say about the kind of skills he looks for in potential young design employees: "What we look for above anything else is the ability to demonstrate creative thought. We don't recruit people on the basis of any knowledge

whatsoever of things like CAD...what we are actually looking for is people who can sit down and work things out with a pencil and demonstrate their thinking. To be able to think; to problem solve; to communicate a solution; to make a value judgement call; these are perhaps the most difficult aspects of design to teach and learn. They also happen to be what defines a designer as a professional". [5] Its pertinent to note here that our own FET Design curriculum specifically addresses these critical skills and encourages our students to face real challenges found in the workplace.

However, all is not rosy. While we now have a fully established, government sanctioned subject called Design being taught at our high schools, we face a serious dilemma that threatens to derail the excellent progress we have made thus far and possibly cause the eventual demise and even extinction of design education in the FET band. I will attempt to lay bare the bones of this dilemma and in so doing address some of the central issues facing both secondary and tertiary educators of design.

## **Bones**

Our government has attempted to embrace change. There are now a total of some 35 subjects in the FET band, providing a wide choice for matriculants to begin shaping their careers. Students have responded well to these opportunities and by all accounts large numbers have chosen design as a subject this year, even to the detriment of art. In 2008 the first matriculants of FET Design will write their final exams. At the same time hundreds more students than usual will begin to seek places in our tertiary design institutions. This is where the real dilemma occurs. In their wisdom, the Council of Higher Education Institutes, commonly referred to as HESA, who are effectively the Vice-chancellors and heads of all our universities, merged and unmerged, have formally issued a statement to the effect that they do not recognize most of the new FET subjects, including Design, as entry level subjects for university study. They have published a list of 8 subjects that they give formal recognition to and in so doing they exclude the majority of the new FET subjects. Furthermore they have posted extensive comment on some of these subjects on their website, criticizing them in the following key areas:

- **an absence of a clear rationale for curriculum construction**
- **content is not specified sufficiently and the learning of skills needs to be integrated with content**
- **progression and conceptual development are not built into the curriculum sufficiently**

While I cannot assume to be critical of HESA's right to decide on policy, I find it strange, in the light of their recent actions that their goals and specific role in acting as the custodians of higher education is posted on their website thus, and I quote:

"...to identify and enhance the contribution made by higher education to high level skills development and, more specifically, the national Human Resource Development (HRD) and Skills Development (SD) Strategies. In order to accomplish this goal, HESA will explore the relationship between the supply of skills and current labour market needs, and identify mechanisms to facilitate higher education institutions' responsiveness". They go on to state that they intend to, "Strengthen the sector's knowledge base on the actual and potential contribution of higher education to critical

skills development. To facilitate partnerships between key role players to promote alignment and coordination, by identifying the distinct roles of each key partner” one of which is cited as “FET colleges.” Unquote. [6]

Odd indeed that central to their policy is the promotion of skills development with key players such as the FET education band, but at the same time, they reject the majority of the FET subjects including the very one, and I would argue the only one, that fully addresses the development of inventive, innovative and creative problem-solving capabilities so badly needed in our country. Is this a case of nearsightedness or are there other factors at play here? I believe that HESA have opted for a safeguarding of the status quo in the face of a perception that the current standards of education at the matric level are to be further worsened by the introduction of the FET certificate. This attempt to maintain ‘standards’ by opting to recognise the old guard subjects like Mathematics and the Sciences, rather than risk it with ‘new’ subjects like Design, seems rather strange when juxtaposed against the national matric pass rate. Less than 4% of last year’s matriculants, for example, passed Maths at the higher grade. Could it be that this is another case of ‘the same old story’ where design is being equated with art, already struggling to maintain its shallow foothold, and is being misunderstood as a variant form of it? HESA’s apparent lack of appreciation for the potential of the subject brings to mind something that Dieter Rams once said, that most people think of design in terms of putting lipstick on a gorilla. How does HESA intend to achieve their published goals of skills enhancement while rejecting a subject which states its definition in the NCS as “...a creative, intellectual, problem-solving process involving problem identification, planning, research, innovation, conceptualization, prototyping and critical reflection...typically resulting in environments, systems, services and products that may be unique or intended for mass production, hand-crafted or produced by mechanical and/or electronic means...and concerned with issues of purpose, functionality and aesthetics in shaping the social, cultural and physical environment to the benefit of the nation?” (7) Even though this ‘definition’ attempts to be somewhat all inclusive, it nevertheless puts the subject in a clear perspective of addressing critical needs.

If the students of design do not receive university endorsement but instead are made to undergo an entrance test based on language and mathematical capability in order to determine their potential to become designers, we will have a problem. We will most likely be excluding some of our best talent from continuing their studies and we will be denying the country much badly needed innovation and problem-solving potential and in so doing we would be shooting ourselves in both feet. Alec Irwin has said on many occasions that the primary objective of the South African government’s economic strategy is the establishment of a manufacturing economy based on a competitive free market system. It would be pertinent for HESA to remember that the establishment of a manufacturing economy relies first and foremost on the development and utilization of one essential skill: *designing capability*. Can they really afford to take this risk? The extinction of a species either happens over many millennia, or it may, as some scientists argue, happen in a single moment. All it takes apparently is one event that causes the beginning of a ripple effect that eventually leads to the demise of a species. The rejection

of Design as a recognised university entrance subject may be such an event and unless we stand up and fight back, extinction is possible.

## **Adding Value**

Instead of turning their backs on Design, I believe HESA should rather be working towards adopting a new, unique approach to learning in our universities, where design thinking, innovation and creative application are recognised as being crucial to the future development of nations. While the Sciences and the Humanities have, for decades, stood as the pillars of the academic fraternity covering most aspects of learning, is it not an opportune time to fully recognise a third dimension, as Professor Bruce Archer of the Royal College of Art in London suggested in the 70's, a dimension separate and distinct from the other two and of considerable weight, occupying an equal position alongside them and destined to become increasingly important in years to come, namely, **DESIGN**. He made the following observation which is worth quoting in full:

" We have no one word, equivalent to Science and the Humanities, meaning *the collected experience of our material culture*. Yet the output of the practical arts fills our museums and galleries, equips our houses, constructs our cities, constitutes our habitat. The justification for the nomination of a third area of education lies not in the existence of subjects which do not fit readily into the definitions of Science and the Humanities, but by the existence of an *approach to knowledge, and of a manner of knowing, which is distinct from those of Science and the Humanities*". Where Science is the collected body of theoretical knowledge based on observation, measurement, hypothesis and test, and the Humanities is the collected body of interpretive knowledge based on contemplation, criticism, evaluation and discourse, *the third area, Design, is the collected body of practical knowledge based upon sensibility, invention, validation and implementation*". Thus design, in its most general educational sense, where it is equated with Science and the Humanities, is defined as *the area of human experience, skill and understanding that reflects man's concern with the appreciation and adaptation of his surroundings in the light of his material and spiritual needs. In particular, though not exclusively, it relates with configuration, composition, meaning, value and purpose in man-made phenomena*".

Some real food for thought.

We could be creating strong bridges between secondary and tertiary levels of education for the subject Design, creating in effect a real continuum that will identify, support and nurture the design talents of the future. Publications like the recent one supported by Woolworths, Sappi, Design Indaba, the CSIR and the Western Cape Education Department is testament to the real value of supporting Design education at high school level. We need much more of this sort of support. Teachers and parents need this support. Heads of schools need to be shown the value of design in the bigger picture. To quote from a recent publication on design:

'With the unrelenting globalization of the free-market economy, so design has become a truly global phenomenon. Throughout the industrialized world manufacturers of all types are increasingly

recognizing and implementing design as an essential means of reaching new international audiences and of gaining competitive advantage. More than ever before, the products of design are shaping a worldwide material culture and impacting on the quality of our environment and daily lives. The importance of design, therefore, cannot be understated. For not only has design come to encompass an extraordinary range of functions, techniques, attitudes, ideas and values, all of them influencing our experience and perception of the world around us, but the choices we make today about the future direction of design will have a significant and possibly enduring effect on the quality of our lives and the environment in the years to come'. [8]

The Heads of government schools have recently received communication concerning HESA's limited list of accepted entry level subjects for university study and it has now surfaced that they have passed this list on to parents of students who have to make their subject choices for matric. The list excludes Design of course. This is in effect an active discouragement to students from selecting Design as a subject for FET study. Are we on our way to seeing the end of this subject in high schools? Students and their parents are at a huge disadvantage and are mostly uninformed about the new FET education band. They are affected by perceptions and these must be corrected as soon as possible. While we stand on the threshold of some really fine opportunities, we are also facing potential disaster. Will HESA cause Design to be reduced to a pile of dry bones?

I suggest that there is much that we can do to avoid this situation ending in tragedy. We can all become active in speaking out wherever we can about the importance of design as a high school subject. Visit schools and share the message with them. Write to the papers about this issue. Keep the cause alive. Teach your own children about the value of design. We must also begin to train teachers to teach design at high school. This last point is of particular importance and it completes this picture of dilemma and irony. Rhodes University is currently, to the best of my knowledge, the only university offering a Post Graduate Certificate in Education for the FET subject Design. I am currently lecturing this course and have 5 students who are doing their teaching pracs at the moment. I believe that in spite of HESA's stance, PGCE courses for Design must become available at universities country wide as soon as possible. It is critical that we instill in teachers the correct perception of design education. Universities must begin to take a serious and active interest in what happens at secondary school levels. We cannot expect to be competitive in world terms if we do not have high quality teachers of design at high school level. Ten years ago I suggested that university Design faculties might have to redesign their curriculums in preparation for 2009, because they were likely to be inundated by students who will have had three years of intensive design study applying for access. But it would seem that I was being optimistic. HESA may have the last word on that issue and if they do, we will be all the worse off for it. We owe it to our subject and our cause to help solve this dilemma.

In a time when History has turned hip and age is developing attitude, where the past is being revisited and second hand is becoming vintage. Where resurrectionist design philosophies of the 20's and 30's abound and revivalist theories are everywhere. In a time when we have unprecedented international

interest in South African Design and we showcase our work at international events on a yearly basis, can we afford to be neglecting the one area of our educational system that brings together the “body of practical knowledge based upon sensibility, invention, validation and implementation” and turns it into useful products for the ultimate benefit of us all? I think not. It is my sincere hope that wisdom and common sense will triumph.

## References

- [1] Hellemans, A. and Bunch, B., *The Timetables of Science*, Simon and Schuster, New York, 1988
- [2] Hawkins, S., *The Universe in a Nutshell*,
- [3] Hollington G: *New Design*, Nov/Dec 2002,
- [4] Bothwick, J: *New Design*, Jan/Feb 2003,
- [5] Bothwick, J: *New Design*, Jan/Feb 2003,
- [6] HESA website: <http://www.hesa.org.za>
- [7] NCS Documents: <http://www.education.gov.za>
- [8] Fiell, C and P, Editors, *Designing the 21<sup>st</sup> Century*, pp 21, Taschen, Koln, 2001

## Additional bibliography

1. Cardwell, D, *The Fontana History of Technology*, Fontana Press, London 1994
2. Moore, DM and Dwyer, FM, *Visual Literacy*, Educational Technology Publications, New Jersey 1994
3. Woodham, JM, *Twentieth Century Design*, Oxford University Press, Oxford/New York, 1997
4. Kimbell, R, Stables, K and Green R, *Understanding Practice in Design and Technology*, Open University Press, UK, 1996
5. Papanek, Victor, *Design for the Real world* 2<sup>nd</sup> Edition, Academy Chicago Publishers, 1999

## Author and presenter

**Keith van Winkel** is a past principal of the internationally renowned Rorke's Drift Art and Craft Centre in Natal. He has been responsible for several national and international exhibitions including the first National Exhibition of Black Art and Crafts at the University of Zululand in 1980. He has many years of teaching experience in the fields of Fine Art and Design and has worked for some of the most prominent museums, schools and colleges in South Africa. He was responsible for designing the Standard Bank Gallery in the Albany Museum in Grahamstown, one of the central exhibition spaces of the National Arts Festival. He has served as a member of a provincial panel of judges for the Cape Town Triennial and currently serves as a member of the Design Education Forum of Southern Africa Executive Committee. He has served as a design education consultant for the DoE and is a member of the Design subject writing group responsible for the new FET NCS document. He pioneered Design and Technology education in South Africa at St Andrew's College and the Diocesan College for Girls where he currently serves as the Director of Design & Technology. He holds a MFA degree from Rhodes University.