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Teaching Creativity

Abstract
This paper is a work in progress which in examining the creative process will attempt to illustrate that purposeful creative activity, like design, can be the result of equally purposeful and structured practices, experiences, formal and informal knowledge that the imagination ingests.

There is a knowledge of creativity. Individuals are not just born with it, or not. We can structure it and teach it;. But we also need to focus and direct unconscious processes

In other cultures 'intuition' is recognized as a legitimate process of discovery and reflection that can be encouraged, directed and taught. We need to have a knowledge of it and how to teach it

Neurology has shown that our brains establish our conscious sense of self to 'make sense' of our largely unconscious decision making processes.

Therefore if, creativity can be seen as the ability to put different kinds of knowledge together, to think differently, and to take risks, we need to overcome fear of humiliation, failure, change, the unknown, the unexpected, nonconformity, mental, social or physical discomfort, and any other fears as you can think of, consciously and unconsciously

Overcoming these fears and restraints in teaching involves removing high levels of competency, non-competitively assessing, assessing all parts of the processes, and not penalizing failure, giving the students lots of responsibility for their learning, and resisting telling them what to do.

Critically, this analysis shows that creativity needs to be not indulgent or personality driven, as it commonly is. Reflection on its processes and outcomes needs to be directed, thoughtful and critical or else it just becomes self validating and self admiring; 'vaporous and self satisfied', in Brian Eno's words

We cannot just sit back and hope for the best

Biography
Stuart Gluth is the Studio Head of Graphic Design and leads the Visual Communication research group in the Visual Communication program, South Australian School of Art, University of South Australia, and is a partner in the design consultancy interDesign. His passion is for typography, which has led to a masters degree from the Atelier Nationale Creation Typographique in Paris, following undergraduate studies in Industrial Design. His currently interest are towards establishing Ph.D. degrees in design practice and for the acceptance of designing as researching.

Teaching Creativity
The first question we are faced with is, what is creativity?

It comes from the word create, which means 'bring into being', meaning that no-one else has done it before.

In terms of design, its meaning can be quite tricky.
Not all design is, or needs to be, original all the time. But when it does, how do we achieve it?

Cal Swann has described the design process in the following way: 'The designer often telescopes a mass of fragmented bits of information and then - *usually after a period of incubation* - invents a coherent and often elegant proposition that embodies all or most of the rag bag of bits' (my italics).

David Ryan describes designing as 'a process that can take a vague question and bring it to a clear and creative response'.

Designers are familiar with these processes. We deal with them often - but, like chicken sexers, who may not really know how they do it, few designers have the inclination or perhaps even the ability to describe it.

That may be excusable, if not justifiable, for practicing designers, but you would think that knowledge of this mysterious process would be the special realm of the design teacher.

But too often we find that they deal only with imitation, which by its very nature must be superficial, or they deal only with the skills based on the peripheral technology of design. Both of these approaches can be very attractive. It's very much easier to judge whether the students have produced work that looks like everybody else's, and it's also much easier to judge whether they have mastered technical skills or not, if you don't have a real understanding of what design is.

But of course these things don't constitute design, and certainly not creativity.

There are other difficulties about our attitude to the nature of creativity. In the Melbourne 'Age' newspaper recently, the new director of the Australian Film, Television and Radio School, Malcolm Long, was quoted as saying that the school had a critical responsibility 'identifying and supporting creative individuals'. In John Maeda's book Maeda @ Media, Paul Rand is quoted as saying that the most important thing in his designing is 'talent, and that's all intuition, and you can't teach that'.

So what are we teaching then?

I'm sure that we have all heard very similar things many times. However, this kind of statement presuppose that every individual out there is already creative - or not - through some accident of fate or fortune of genetics, environment or weaning, and it implies that there's nothing you can do about it. All that can be done is to nurture the ones who somehow turned out to be creative.

The implication that you can't teach creativity is a common attitude, often reflected in selection procedures for design schools, and in the way that they teach. In my opinion this is a great abdication of responsibility.

There are other difficulties as well. Victor Margolin in examining Herbert Simon's proposal for A 'science of design' comments that 'Simon seeks to legitimise design as a science by reducing the role of 'intuitive' judgement in the role of design as much as possible' instead promoting 'a body of intellectually tough, analytic, formalisable, empirical and teachable doctrine about the design process'. But as Margolin points out 'Simon presented his lectures at one of America's leading technical universities [MIT] and he defines his standards and criteria for a new 'science' of design in terms that would be acceptable to a community of engineers'.

Cal Swann also points out 'John Christopher Jones and Bruce Archer were notable amongst the first design theorist of the post war period. Importing methodologies from the field of engineering [they] applied rational approaches to design that established a basis of research, analysis, synthesis, production and evaluation'.

In these instances, at least academically, in its search for respectability, design has attempted to import its methodology from other disciplines, principally from engineering as in these examples but also from the social sciences.

However Clive Dilnot, John Wood, Cal Swann and Nigel Cross, among many others, have all pointed out the need for design to have its own criteria, not just its own paradigms within existing borrowed methodologies.

Additionally, long ago R D Laing, talking about psychology, or perhaps psychiatry, had questioned the need for the absolute objectivity of science and scientific method for a 'science of human beings'.

Design is very much such a 'human' activity.

But even if such a borrowed process as described by Jones and Archer, or Simon, consisting of 'research, analysis, synthesis, production/application, development, verification' or something similar was accepted, it is still not very helpful in describing actually how we 'do' it, particularly how we make those creative jumps.

What happens during those 'periods of incubation' that makes the outcome of a design process 'coherent and ... elegant' or 'clear and creative'?

From a technical point of view, the creative aspect of design is superfluous. A bridge or a typeface doesn't *need* to be aesthetically pleasing - whatever that means - to be functional. But there is something essentially human in our insistence that they are.

And this seems to have always been so. From the extraordinarily beautifully told stories at Lasceaux or remote Australia to the wonderful decoration of ordinary ceramic containers produced in the most miserable conditions by the lowest artisans in ancient Greece to Robert Maillart's bridges, the very human need for beauty in very ordinary functional things seems to push itself forward continually.

But where does the ability to do it come from? Why do those who do have it - have it – and how did they get it?

Certainly none of the above went to art school and they almost certainly didn't proceed through formal design methods and idea generation, analysis and verification, and neither do most of us most of the time.

Even if we did, in which part of that formal process does the creativity take place?

All of them could be creative, even the **verification** part, which takes place continually as a series of little feedback loops influencing the process as it goes along, not only at the end as it has been represented here.

But equally none of them might be creative. This terminology does not in itself explain how the creative process takes place.

However the terms are of some use in determining what needs to be done, and we do need to discuss how these processes *may* contribute to the creative bit.

Analysis is important in determining what the question is. It helps to make sense of a lot of 'bits and pieces' and clarify 'vague' questions. Sometimes in creatively determining what the question is, the solution may be revealed.

Synthesis is determining possibilities and might be the most obviously creative bit. Idea generation methods and even demanding that large numbers of possible solutions be considered can force designers or students out of their comfort zones and into the unexpected.

In **development** (or application or production) the interaction and discipline of the ideas with technical needs or limitations such as media, production, costs, perception etc, can also force the designer into new thinking. The physical form of design can be pushed in new directions if the designer can be 'awakened' to see them.

But in themselves these descriptions of such possible design methods do not actually tell us about the nature of creativity. While in some individuals they might promote creativity, equally in others they might not. There is nothing *inherently* creative about these processes.

These processes might be followed religiously and give rise to adequate outcomes that do not exhibit at all what we recognize as creativity.

There are many books, for example Edward de Bono's, among others, which outline rather formal processes for divergent thinking and idea generation, which are designed to get people thinking differently

and outside expected outcomes, but they also do not *necessarily* connect us into the unconscious process (or processes) such as the intuitive jumps or inspiration that appear to be so often present in what we recognise as creativity.

But how do we recognise creativity?

It seems that we are surrounded by answers, but, unfortunately, not often in design. For instance, in The Australian newspaper a recently there was an article on a man who made a cruise missile for five thousand dollars from bits bought over the internet, mostly from aircraft hobby sites. He is quoted as saying 'as far as being a [self styled] lunatic ... all creative people are'.

There may be hope for us yet. Is it possible that we are all lunatics, just held in check enough by social pressures and institutionalised fears to be able to live together? Perhaps we just have to overcome some of that. Perhaps it means that potentially most people are creative, if a little mad.

In Susan Greenfield's wonderful and insightful television program 'Brain Story' she describes a man who had never indicated any creative activity at all up until the time his frontal lobe began to deteriorate with disease, when he suddenly began to do so.

Greenfield points out that that the frontal lobe is where the sense of self is; our individual differences, temperament, social interaction and personal style; but also therefore our sense of restraint, our fear of appearing foolish or of humiliation, and these can be powerful inhibitions.

Fear of change, particularly in a rapidly changing world, is also a major inhibitory factor; and creativity and design are all about creating change - about seeing change as possible. Clive Dilnot in particular has pointed out that design is about possibilities – and therefore uncertainties - not absolutes. This lack of certainty is frightening to most of us.

So why don't creative people have this fear, or more importantly how can we overcome it in young designers? Hopefully we can begin to see what we need to do, or just as importantly, what not to do, to instil creativity in our students.

In a recent Australian Creative, an advertising industry journal, there was an article in which a young creative director used self-hypnosis learned from a hypnotherapist to be able to more often get into a mental condition where he had observed that he was able to be more creative. While this is indicative of an interesting process we might be able to learn from, care is needed that it just doesn't just become just personal expression or indulgence. The kind of creativity a designer requires for solving problems needs to assimilate lots of external information – 'thinking outside the head' in de Bono's words.

While we need to encourage these unconscious thinking processes such as intuition and inspiration by valuing and encouraging them, we also need to 'teach' students, if that is the right word, how to structure them and purposefully use them, so that they a not just processes of such personal expression or indulgence. But the question is, of course, how?

To start with we need to value all parts of the process, not just the final outcomes, and we need to value all attempts, even attempts that fail. We particularly need to value failure where learning takes place, in particular to structure our teaching so that learning does take place from failing, and to overcome a fear of failing.

Also, analysis of all the 'bits and pieces' and 'vague questions' is important, not only for formal idea generation, but as part of getting the information into the subconscious for 'incubation', and then allowing undistracted time and environment for both conscious and unconscious consideration.

Relaxation and even meditation techniques have proved useful and are commonly used by people needing to envisage change, such as athletes or performers.

It is also important to start with simple means. For instance, projects which contain reduced complexity of content, technique and medium, (and without the additional 'meaning' of image) allowing the students to make lots of little creative jumps, without much risk, and to succeed quickly and easily, and gain confidence. Only in this way can students gain an understanding of how basic principles work, simply and quickly.

Only then do we need to build up to more complex and 'meaningful' work as confidence and understanding is achieved, both consciously and unconsciously.

To begin a course with a full-blown so-called 'real' project, or anything approaching it, only presents students with a task beyond their means. They have no means of understanding what they are doing. They are therefore reduced to copying what they see around them without understanding – in fact undermining their ability to understand – this lack of knowledge can only generate insecurity and fear, which is likely to undermine whatever chances of creativity they had.

Using hand and eye in co-ordination is also important; and may involve keeping students off computers for as long as possible. This is not just a Luddite comment from a designer and teacher yearning for some lost romantic past. The hands are another pathway into the brain by which reaction and response can be learned, both consciously and unconsciously. (How important this is may be indicated by the way tactile friction generated by the movement of the limbs can be used to rebuild the neural connections, particularly for language, of children who have been brain damaged during childbirth such as in the Philadelphia method).

The brain's structure actually physically represents its experience, and while it may be somewhat late in that process at the ages *we* are teaching students, we can still influence their thinking processes by the interaction of visual and movement sensation. Perhaps sound and smell are also important, in the way that the smell, sound and feel of the pages is such a part of the pleasure of reading a book, and part of the memory of it.

And we need to teach our students to see in a new way, teaching them how to observe the unexpected by modelling processes of random association and careful observation of accidental juxtaposition, so that the unconscious learns to do the same.

Most of what I am talking about here is about having students, and indeed designers, going beyond the expected with confidence and without fear.

We need to embed these values by the way we structure our
courses, the way we interact to teach our students, and perhaps most important of all, how we assess their work. We need to use non-competitive structures and terms of teaching and assessment so that students feel confident to share their experiences and discoveries with each other, and to learn from each other's work.

But, as one of the reviewers of this paper rightly pointed out, this is essentially a 'basic design methodology', and it is not *necessarily* one which leads to structuring and focusing these unconscious processes.

The same reviewer refers to Christopher Jones' writing in his 'Design Methodologies' (sic) about 'transparent and objective' design which can be learned by determined methodology, and that which is hidden and 'subjective creativity' which is intuitively developed (and perhaps may be argued by some as 'unteachable').

Yet it is the inspired combination of the former and the latter that appears to be so often present in successful design outcomes which meet 'human' needs.

(Human needs are notoriously difficult to measure, however, and I have observed that it is often the practice to only acknowledge those things that are relatively easy to measure as *objective*, labelling those that are more difficult to measure as *subjective*, particularly in design. However that is not the subject of this paper).

It is, however, exactly the argument of this paper that the unconscious processes we use so often to come up with creative solutions to design problems can be focused and directed, and give rise to outcomes that are transparent and can be verified. This indicates to me that they are not necessarily subjective, even though they have been arrived at by intuitive or unconscious thinking processes.

Mailart's bridges or Gaudi's buildings could not be created by the mathematics of the time but their inspired engineering has proven to be correct. I am arguing that it is the solution which is valid – measurably successful - or not, rather than the process which produced it.

As yet, I have encountered more indicators and starting points for a serious investigation than useable information. For instance, I am aware that other cultures acknowledge the role of the unconscious and creative in the sciences, mathematics and philosophy. There is not the difference in perception or the valuing of knowledge between creative (arts - subjective) and non-creative (science – objective) that we find so predominates our anglo-celtic academic culture.

Also, there is currently a dialogue within the Design PhD email group which argues that the design processes is a process of learning. Within that dialogue Chris Heape discusses some possible strategies which involved 'some kind of mediator or messenger between their world of association and the semi-real world of the product' to encourage 'transference' of what is learned in one design experience to another, giving rise to insights about both learning and creativity.

While these starting points indicate the difficulty of the task, I am confident that there is a knowledge of the unconscious in creativity. I am just as sure that it is the role of the design teacher to have a knowledge of the conscious and unconscious processes which *together* constitute creativity in designing.

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