Enhancing Creative Thinking in Science and Engineering



Workshop / Presentation: notes & references: John Renshaw

The original creative principle:

The American Artist, Robert Motherwell maintained an interest in automatism throughout his life. Although he remained suspicious of its mystical connotations (1) fundamental principles appeared to inform his working methods. Motherwell identified a number of key issues which serve to define its potential in the origination and development of paintings and drawings. He saw the process as "...very little a question of the unconscious, but 'much more a plastic weapon with which to invent new forms'. (2)

Motherwell's analysis and, to some extent defence, of the process is as follows:

- 1. It cuts through any a priori influences it is not a style.
- 2. It is entirely personal
- 3. It is, by definition, original
- 4. It can be modified stylistically and in subject matter at any point during the process

The Drawing workshop seeks to explore Motherwell's approach and by definition, exposes a related learning and teaching strategy. The process serves as a catalyst for creative thinking, exploiting analogy, simile and metaphor in the generation of artistic and personally defined contexts or narratives.

- (1): Motherwell eventually declared that 'artful scribbles ' might be a more appropriate term. Artful Scribbles ' is the title of a book about children's drawings by Howard Gardener. Motherwell also considered that ' psychic automatism' was ' the most powerful creative principle......consciously developed in the twentieth century ") see: essay by Arthur C Danto "The "Original Creative Principle": Motherwell and Psychic Automatism " in Rosand D. (ed.) (1997) "Robert Motherwell on Paper" " pub. Harry N Abrams Inc. ISBN 0-8109 4294 1 also refer to 'Letter to Henning ' The Collected Writings of Robert Motherwell " ed. Stephanie Terenzio. Oxford University Press 1992: p 230)
- (2): "Plastic automatism ...is....very little a question of the unconscious. It is much more a plastic weapon with which to invent new forms ". Robert Motherwell, quoted in Irving Sandler, "The Surrealist Emigres in New York, "Artforum (New York) May 1968 p. 29. The notion of 'automatic drawing 'had a clear impact on the work of Jackson Pollock. (See 'Jackson Pollock: Drawing into Painting: Bernice Rose: Museum of Modern Art, New York 1980 p. 13).

Workshop / presentation: supporting material.

The poet John Keats wrote that understanding poetry requires that we must be willing to put ourselves in a special state of mind, which Keats called "negative capability". He describes this state as one in which a

person, " is capable of being in uncertainties, mysteries and doubts, without any irritable reaching after facts & reason'.

- "... when you read through the many volumes of Thoreaus Journals, what is so impressive is that he simply records what he observed and thought about during a usually aimless walk he took on any particular day. He doesn't take a walk the walk takes him. This is his pedagogy. He will more wonder than walk. He'll observe the forms of the ice and these cracks refer him to ideas about the worlds that have nothing to do with cracks, and these ideas lead to the study of something else apparently unrelated. The universe of what his walk leads him to learn is ever expanding, generous, free. This is learning as poetry the idea of sauntering through history, through knowledge, through possibility finding yourself by carefully getting lost "(from a conversation with Tim Rollins cited in 'Finding Arts Place Experiments in Contemporary Education and Culture "Nicholas Paley. Routledge. New York 1995)
- "Verbal description stops visual mediation in its tracks and the more brilliant and profound that description is, the more deadly in its effect in freezing or arresting the instinctive flow of the purely visual thinking which, in the painter, first produces the painting and, in the spectator, lies at the heart of his experience of the painting ': Patrick Heron The Shape of Colour rep in "Concerning Contemporary Art The Power Lectures 1968 1973 ed. Bernard Smith Clarendon Press, Oxford 1975.

Mark Making: marking a surface: the medium / material & its properties: direct manipulation & handling of materials: 'seeing' through materials / exploitation of materials characteristics through experience: physical movement / touch allied to visual sensations: focused activity - noticing things: 'content free' - no image: sequential 'visual statements' - generating and accumulating visual evidence (Finke 1990): pace - narrow gap between thought & action: intuition & feelings - action & reaction . open ended visual enquiry: experimentation / exploration / improvisation: 'Flow': avoid 'closure'. visual mechanics .

David Thistlewoods observations about Tom Hudsons teaching, appear to acknowledge the significance of doodling as a catalyst to creative thinking. He refers to Hudsons work with children, and the implications of helping them to explore a 'natural creative process' (Thistlewood) Hudson applied teaching philosophies developed with children at all levels with some success. Thistlewood observes: "...instinctual 'scribble', led to the recognition of images, to material exploitation and the evolution of visual structure. The images and symbols children used in their creative inventions afforded limitless comparisons with their surroundings (when the image was real), as opposed to the only possible comparison (when the image was that of a particular subject). (see "A Continuing Process' pub. I.C.A. London 1981 and reprinted in 'Histories of Art & Design Education 'ed. D. Thistlewood . Longman Group UK. 1992)

"Chance has an awful lot to do with it. The chance thing was probably developed from the surrealists. I use chance because I said I didn't want to invent. I wanted to find other ways to compose. I wanted to find things out there to use, rather than sitting down and saying. "Oh. this is what I'm going to to paint. I'm inventing this'... I draw a lot, just doodles, while doing something else, talking or something. Very often I catch something that I wouldn't have if I hadn't started thinking. I like to do things almost automatically. Freedom. My decision making is different somehow the shape and colour reveals itself to me - I don't try to dominate it. from "Shaping up to Ellsworth Kelly / Simon Morley. Tate magazine issue 12/ Summer 1997 p 22 -29 inc.

Reflection: reviewing the visual evidence - paying attention to 'visual facts: making comparisons and connections: possibility of subverting 'repetition' through use of chance e.g. via. 'collage - a means of reordering the evidence. Interpretation and meaning.

"...when you paint you don't choose to paint the way you paint, how you make a shape or a form. You are compelled to make it that way because it reflects your nature and you are therefore able to recognise it as being true, and then you leave it that way "Sean Scully: interview with Dr. Hans Michael Herzog: see Catalogue: Sean Scully. South London Gallery 1999 (16 June - 1 August) in Association with the Timothy Taylor Gallery).

Classification: 'sets'-sorting & ordering: identifying 'significant 'and 'non significant visual statements - role of intuition and feelings: subjective judgements: criteria -evaluating / interrogating & making choices: Searching for visual structure/s: identifying recurring visual characteristics.

"... When you've done something a lot, it gets built into your arm, and wrist and just comes out - in the way you might use a certain phrase habitually, though in wholly different contexts". (Robert Motherwell - interview with David Hayman 12 & 13 July 1988. from 'The Collected Writings of Robert Motherwell' edited by Stephanie Terenzio. Oxford University press 1992. ISBN 0-19-507700-8.)

The American painter Frank Stella made the following observation when discussing the development of his paintings: "I think you're born with a particular sense of structure and you can't really change it. My sense of how things go together, of what constitutes equilibrium, stays the same - as, for example, the way I put things edge to edge, point to point. If you look carefully at work as different as the 'Exotic Birds' and the 'Running V' stripe pictures, you'll see that the V's relate edge to edge, point to point in a similar way. Although it looks very different, it's the same sensibility ". from: Frank Stella p79 in Frank Stella 1970 -1987 by William Rubin MOMA p/b (dist by T&H)

Language - oral / written: finding words to describe / explain / explore what is observed and / or imagined. testing language against visual experience : word / list / sentence / paragraph / prose / poem : analysis of formal qualities or wider visual associations/ connections (inferred / implied) through use of analogy (Rawson. P) / metaphor / simile :

- * W. H Auden in his introduction to "Goethe's- 'Italian Journey', remarked that,
- " No verbal description, however careful, can describe a unique object; at best, it describes objects of a certain class. The only media for showing an object in its concrete uniqueness are the visual arts and photography. Goethe, of course, knew this and said so.
- " We ought to talk less and draw more. I, personally, should like to renounce speech altogether and like organic nature, communicate everything I have to say in sketches "

He also knew that this was an exaggeration. There are certain characteristics of things which are every bit as 'objective' as their visual appearance and with which only language can deal. A drawing can show what something is at a moment, but it cannot show us how it came to be that way, or what will happen to it next. This only language can do." (Auden W.H. Mayer E (trans) Goethe. Italian Journey. Penguin Classics 1987 edn.).

Instigation Of Visual & Contextual Research: making & matching

(Gombrich E. L): visual / conceptual / contextual links: ideas & imaginative transformation: searching for 'clues': emerging subject matter/ content & developing visual contexts to endorse/ validate discoveries via. reference to a visual / artistic context: trawling history of images / visual research: making connections with related visual phenomena / concepts / ideas: how things look in addition to what things are.

- "Sometimes I see it and then paint it. Other times I paint it and then see it . Both are impure situations, and I prefer neither" (Jasper Johns) From 'Sixteen Americans, 1959 pp. -27.exhibition catalogue. New York Museum of Modern Art. reprinted in Barbara Rose, ed. Readings in American Art since 1900: A Documentary Survey, New York: Praeger Publishers 1968 pp165 66
- ' Painting is an activity and the artist will therefore tend to see what he paints rather than paint what he sees 'E. H. Gombrich.
- " To create, to respond to and understand Drawing, we depend upon one great fundamental faculty of the human mind, seldom discussed as it deserves:

Hamlet: Do you see yonder cloud almost in the shape of a camel?

Polonius: By the mass, and 'tis like a camel indeed.

Hamlet: Methinks it is like a weasel.

Polonius: It is backed like a weasel............

Hamlet: Or like a whale.

Polonius: Very like a whale......

(Shakespeare W: cited in: "'Very like a whale': the spectators role in modern art". Charles Mitchell: in 'Concerning Contemporary Art ' The Power Lectures 1968-1973. edited by Richard Smith. Clarendon Press.(Oxford University Press) 1975.

Personal Development - consolidation of personal ideas through increasingly focused activity: Exploring / responding to key elements e.g. Line, shape, texture, scale, proportion, - extending issues through media: 'thinking and seeing 'through materials / change of pace: adopting the position of 'the reflective practitioner'

(1. Reflection in action 2. Reflection on action 3. Reflection on' reflection on action'. - see: Schon D.): refining decisions and making choices: speculation: emerging intentions: continuing possibility of subverting 'repetition' through use of chance. eg. via. 'collage. reordering the evidence - same marks, different configuration. Synectics: drawing / painting and personal experience: a search for meaning: establishing a context.

John Christopher Jones acknowledges Heideggers philosophical method which reflected a shift 'from progress to process'. "what he (Heidegger) does is to refuse to be drawn into making any fixed conclusions, concepts or theories, which are the accepted aims of western philosophy.instead he writes and teaches a mode of what he calls 'meditative thinking 'that is not intended to reach conclusions but to keep the process of thinking alive. while this kind of philosophy is happening, while the thinker is thinking-then it's happening.as soon as he/she reaches a conclusion-it's over, dead, the aim does not disappear-but it changes its nature, for what Heideggar calls calculative thinking-thinking as a means to an end, the aim is external to the process. The use of thinking to establish truth, certainty; to control something. But for meditative thinking or what I am calling process philosophy, the aim is internal-to maintain the process, because, says Heidegger, only while we are giving our minds to whatever it is that provokes our thoughts are we being truly human.": Jones . J.C. Designing, Designing - architecture design and technology press, London. 1991 p. 160.

'Creativity is not so much having good ideas as being willing to attempt what is unfamiliar, being willing to change ones mind "

Jones. J.C. Designing, Designing - architecture design and technology press, London. 1991.

Further reading:

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