Research Procedures / Methodology for *Artists & Designers*

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Abstract

We have made an effort throughout this paper to promote the use and development of Art & Design 'research terminology' in an attempt to establish a common language of research, vital for its identity and future progress. Italicised words are those normally associated with established science/ social science languages so that equivalences can be understood. The paper tries to be 'bilingual !

This paper attempts to put into context the issues which surround the endeavours of researchers working in the field of Art and Design, in particular the philosophy and context of research procedures / *methodologies.* The introduction provides some definitions of methodology and its importance in the general context of inquiry and research, historically and actually supranational in essence; characteristics of existing methodologies in Science (Newtonian and Quantum) and Social Sciences are examined; characteristics of 'artistic method' are elaborated, especially through an examination of Fine Art and Design Methodologies in relation to practice; common factors linking creative, scientific and artistic procedures are identified; 'Postmodern Methodology' is discussed, in relation to current 'paradigm shifts'; existing & new procedures / *methodologies* and devices / *tools* are identified, and future developments proposed.

Introduction - Definitions and General Context

'method:
    1. way of proceeding or doing something,
      esp. a systematic or regular one.
    2. orderliness of thought, action, etc.
    3. (often pl.) the techniques or arrangement of work
      for a particular field or subject.'

'methodology:
    1. the system of methods and principles used in a
      particular discipline.
    2. the branch of philosophy concerned with
      the science of method.'

'The New Collins Concise English Dictionary' London, 1982

If meaningful research is to be carried out in any discipline, a suitable strategy / *methodology* for acquiring new knowledge must be identified. This procedure should be thorough / *rigorous*, open / *accessible*, easy to understand / *transparent*, and be useful in other contexts / *transferable* (in concept at least). The choice and nature of procedure / *methodology* is crucial; if not chosen with care, the resulting research may be fundamentally flawed and its outcome irrelevant. One might say that a piece of research is only as good as its methodology! That is why we believe it is so important to promote work on methodology for artists and designers, so that funding bodies and the wider academic and social community can have confidence in the quality of research produced.

European League of Institutes of the Arts

In November 1991 a meeting of the ELIA Research Network took place at Utrecht School of the Arts; it was evident from that meeting that one of the most serious challenges to the Network in particular and to researchers in Art & Design in general would be the development of appropriate methodologies. Although this publication has a strong European dimension, it seems impossible to view research (and therefore methodology) as bounded by geography; historically researchers have been eclectic and supranational. Research, unlike institutionalised postgraduate 'courses', has not tended to be as dependent on immediate culture and custom. It is, by its nature, interdisciplinary, collaborative and international (in theory, if not practice), and therefore provides a good model for some aspects of European co-operation in postgraduate education.

This paper was first published in 'Principles & Definitions: Five Papers by the European Postgraduate Art & Design Group', Winchester School of Art, 1993

Research in Art & Design is a relatively new endeavour; research for higher degrees, which incorporate an element of practice, have only been undertaken within the last twenty years (Allison, 1992). For this reason there are, as yet, no well-defined strategies on which researchers can draw. In scientific disciplines research methodologies have been

Allison, B., 'Allison Research Index of Art & Design', Leicester Expertise, 1992

developed over several centuries; even social science has now a century old tradition. With this perspective, it is obvious that the definition and articulation of 'artistic' research procedures will not be accomplished easily or quickly, given the enormity and complexity of the challenge. The long-term nature of research means that the development of procedure / *methodology* is an evolutionary process: only after repeated and successful use will a procedure / *method* be validated and become accepted as a 'standard' technique.

The lack of appropriate procedures / *methodologies* has forced researchers in Art & Design to use those which have been established in Science and Social Sciences. Some have been appropriate (Malins, 1993), others disastrous! The procedures / *methods* adopted so far by researchers in Art & Design appear to have been in danger of falling between two stools: on the one hand, being forced to adapt (preferably) or (more commonly) borrow a 'standard' methodology, which may distort the research; or alternatively, taking the risk of inventing esoteric methodological devices / *tools*, which may remain so project-specific to be of little, if any, use when applied to other situations. (However, at this stage in the evolution of research in Art & Design, it would be unwise to completely discount idiosyncratic procedural devices, as in time they may become validated and eventually 'classic'). Art & Design research requires a distinctive approach and the use of procedures / *methodologies* which are appropriate and sympathetic to the nature of the discipline, but no less rigorous, respectable and accountable than those of the Sciences and Social Sciences.
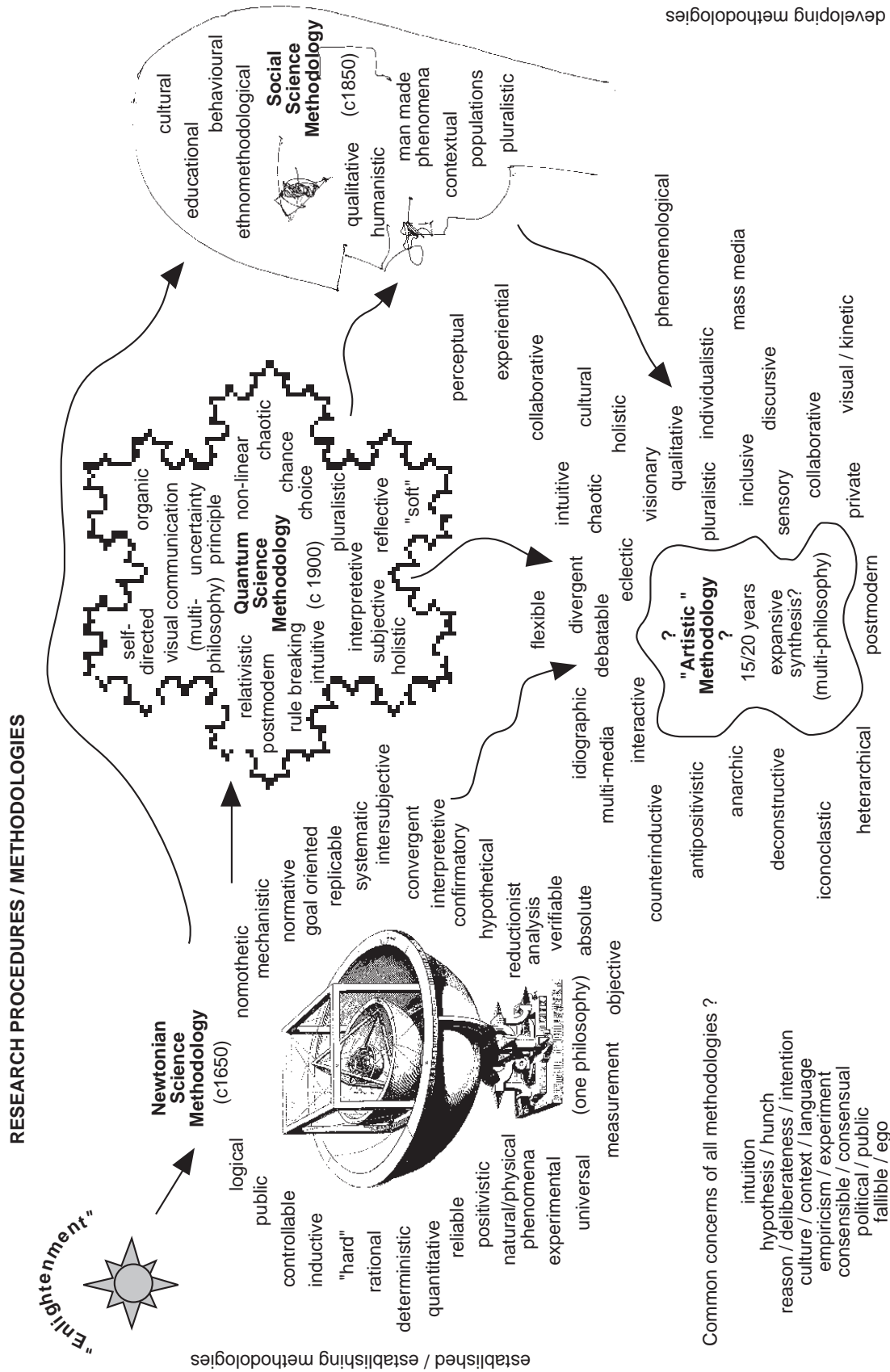
Research has been defined as accessible, systematic inquiry (Allison, 1992), and 'intentional, procedural, explicit and publicly accountable' (Gray, 1993). 'Inquiry' has been defined as 'the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole' (Dewey, 1938). Whatever the discipline the processes involved in inquiry and research are common to all: a question / problem which is open to inquiry, but as yet 'fuzzy'; an intentional / procedural approach; transformation / synthesis / new 'knowledge'; public outcome / communication. However, within this general process of inquiry, the research methodologies adopted in different disciplines will reflect the specific nature, structure and intentions of the discipline; it is therefore pertinent at this point to briefly examine the characteristics of existing procedures / *methodologies* in Science and Social Science.

Malins, J.,
'The Monitoring and Control of Specialist Ceramic Kiln Atmospheres and Emissions'
Unpublished Ph.D. thesis, The Robert Gordon University, Aberdeen, 1993

ibid.

Gray, C.,
'Strategy for Research: Grays School of Art'
unpublished internal consultative paper, RGU, 1993

Dewey, J.,
'Logic: The Theory of Inquiry'
Henry Holt & Co., New York, 1938

RESEARCH PROCEDURES / METHODOLOGIES

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developing methodologies

Social Science Methodology (c1850)

cultural
educational
behavioural
ethnomethodological

qualitative
humanistic
man made phenomena
contextual
populations
pluralistic

phenomenological
mass media

Quantum Science Methodology (c 1900)

self-directed
organic
visual communication
(multi-uncertainty philosophy) principle
relativistic non-linear chaotic
postmodern chance
rule breaking choice
intuitive pluralistic
interpretive reflective
subjective "soft"
holistic

perceptual
experiential
collaborative
cultural
holistic

visionary
qualitative individualistic
pluralistic inclusive discursive
sensory collaborative
private visual / kinetic
postmodern

intuitive
chaotic
eclectic
divergent
debatable
flexible

idiographic
multi-media
interactive

"Artistic" Methodology
?
?
15/20 years
expansive synthesis?
(multi-philosophy)

counterinductive
antipositivistic
anarchic
deconstructive
iconoclastic
heterarchical

Newtonian Science Methodology (c1650)

nomothetic
mechanistic
normative
goal oriented
replicable
systematic
intersubjective
convergent
interpretive
confirmatory
hypothetical
reductionist
analysis
verifiable
absolute
objective

logical
public
controllable
inductive
"hard"
rational
deterministic
quantitative
reliable
positivistic
natural/physical phenomena
experimental
universal (one philosophy)
measurement

"Enlightenment"

related to: artworks (artificial things), artists / designers (people), creativity (process & products), culture

Common concerns of all methodologies ?

intuition
hypothesis / hunch
reason / deliberateness / intention
culture / context / language
empiricism / experiment
consensible / consensual
political / public
fallible / ego

Characteristics of existing methodologies *

*Logical **Positivism** refers to a school of thought that all knowledge must be derived from direct observation or logical inferences based on direct observation.*

***Empiricism** refers to a commitment to obtaining knowledge through the sense experience, literally 'based on experience' (in Greek).*
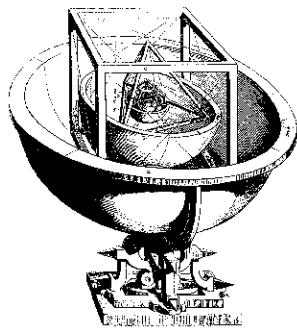
'Harmony of the Universe' from Mysterium Cosmographicum, Kepler, 1621

***Reductionism** refers to the belief that all complex phenomena can be understood by reducing them to their constituent parts.*
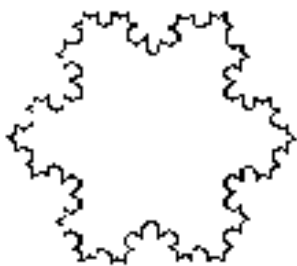
*Capra, F.,
'The Turning Point: Science, Society and the Rising Culture',
London: Flamingo, 1983*

*Gleick, J.,
'Chaos: Making a new science',
London: Cardinal, 1988*

*Hall, N. (ed.),
'The New Scientist Guide to Chaos',
London: Penguin, 1992*

Scientific Models: Newtonian Science

The aim of science is to provide explanations for phenomena, its research strategies being characterised as systematic, rigorous, controlled, deductive, predictive, **positivistic**, **empirical** and based on logical experimentation. The scientific model of research has its antecedents in Galileo, Copernicus, Descartes, Bacon and Newton. The 'Cartesian division' between mind and matter lead to the scientific view that matter was dead and could be considered in isolation from the scientist, and that the world was a multitude of different, discrete objects assembled into a huge machine.

This mechanistic view of a 'clockwork universe' was held also by Newton, who developed his laws of motion and mechanics, which became the foundations of classical physics. The Newtonian model of the universe dominated scientific thought right up to the end of the nineteenth century. Descartes' views undoubtedly influenced the development of modern physics and still persist to the present day, manifested, for example, in Western medicine, which has persistently separated the mind from the body.

Galileo was largely responsible for the development of **reductionist analysis**, which has proved useful for the development of science in general, but inadequate when applied, for example, to the study of human behaviour, which is immensely complex, elusive and intangible. The danger inherent in the reductionist approach is in the narrow focus on a particular problem which may lead to an ignorance of the whole: the specialist knows more and more about less and less until he knows everything about nothing!

Scientific Models: Quantum Science

At the beginning of this century the limitations of the reductionist approach were acknowledged by Einstein, Bohr, Heisenberg and others in the development of quantum theory (Capra, 1983). The concepts of subjectivity, observer's perceptions, simultaneity, relativity, uncertainty, randomness, indeterminacy, subatomic anarchy, chaos (and more!) are now influencing scientific and social scientific methodology (Gleick, 1987; Hall, 1992), and will without doubt be influential in Art & Design research.

Social Sciences Model

The disciplines of the social sciences - education, sociology, anthropology, etc., share a belief in the value of context, and the importance of the perceptions of the researcher as interpreter. In the past research in these disciplines was problematic and its progress was hindered by the lack of suitable methodologies. Initial reliance on established (pre-quantum) scientific methodologies, largely quantitative in nature, did not provide suitable 'tools' to investigate people, behaviour, culture, etc. It was not until social science researchers themselves took responsibility for adapting and / or inventing methodologies, sympathetic yet rigorous to their particular disciplines, that research in those fields advanced, encouraged no doubt by radical changes in quantum science. Qualitative methodologies (including phenomenological, **hermeneutic**, **axiological**, ethnographic, holistic, naturalistic, descriptive, experiential, **dialectical** strategies, etc.) promoted the value of subjectivity, individuality, complex interaction, involvement, etc., and are now considered legitimate procedures. They offer researchers in Art & Design guidance towards more appropriate procedures for our discipline.

Hermeneutic refers to the interpretation of texts or data in order to understand the context that gives the material meaning.

Axiological refers to the study of ethics, values and aesthetics.

Dialectical refers to the logical examination of ideas and the reconciling of opposite concepts by question and answer so as to determine their validity.

Artistic Models

ibid.

Although research in Art & Design has a relatively short history, procedures / *methodologies* in relation to practice in the visual arts have been articulated (Allison, 1992). In general terms, art / design history and contemporary critique provide us with rich, if esoteric and idiosyncratic, sources of information on artists' and designers' working processes. A wealth of serious research exists on the processes of creativity (identified by Wallas as having four stages - preparation, incubation, illumination, verification), and many popular texts give us step by step guidance on how to enhance our creativity. A brief examination of existing procedure / *methodologies* in Art & Design practice may help us to formulate strategies in relation to research (especially practice-led research).

*Wallas, G.,
'The Art of Thought'
Cape, London, 1926*

Fine Art Methodologies

One might propose that Fine Art by its very nature is 'anti method', but even 'anti- method' (chance, chaos, randomness, anarchy, etc.) is a methodology! (Watson, 1992). The notion of having a 'procedure' or working process (*methodology*) is a vital part of a fine artist's activity, however chaotic or anarchic it might appear. Probably the most important work done in this area, especially related to student learning, is that of Cornock

*Watson, A.,
'An Exploration of the Principle of Chance on the Creative activity known as Sculpture'
unpublished Ph.D. thesis, RGU/ CNAA, 1992*

Cornock, S.:

'Notes Towards a Methodology for Students of Fine Art' Leicester Polytechnic Monograph, 1978

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'Strategies in Fine Art' Journal of Art & Design Education, Vol.3, No.2, 1984
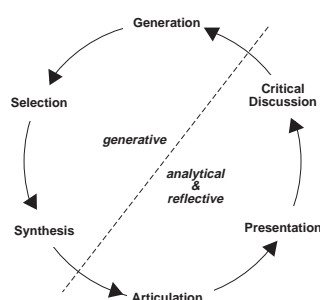
adapted by Gray from Cornock

Workprogramme *refers to a procedural / methodological device encouraging students (in Art & Design) to make statements of intention.*

Manifesto *- a public declaration of intent, especially artistic or political.*

Statement *- a contextual, intentional text, setting out personal artistic beliefs, etc.*

Jones, J.C., 'Design Methods: seeds of human futures', Wiley, New York, 1980

Lawson, B., 'How Designers Think: The Design Process Demystified', 2nd edition, Butterworth Architecture, London, 1980

Cross, N. (ed.), 'Developments in Design Methodology', Wiley, Chichester, 1984

(1978, 1983, 1984). In these papers Cornock sets out the historical and educational context in which a shift from technical, practical considerations of method, to a more metaphysical and intellectual concern for methodology, is apparent. In relation to student-centred teaching and learning in Art & Design, the identification and articulation of methodology is particularly important, where individuality and personal development are key objectives. From an analysis of Fine Art students' working experiences, Cornock identified the following cyclical pattern of activities - the first three being 'generative', and the remaining three being 'analytical and reflective':

1. Generation (manipulation of materials in the studio)
2. Selection (elements of form & pattern identified whilst engaged in 1.)
3. Synthesis (conceptualisation & planning of a piece of work)
4. Articulation (articulation of problems or concerns emerging from 1., 2. & 3., contextualising these, where appropriate)
5. Presentation (of 3. & 4. so as to engage critical attention)
6. Critical Discussion (which may generate new ideas, and back to 1.)

Although Cornock's research concerned student learning, this pattern will seem familiar to practitioners in Fine Art (and probably Design) as a general procedure - practice and reflection on practice. Within this general procedure lies a personal one, intimately linked with the artist's particular intentions, and reflecting the idiosyncrasies of the individual's working process. In education this is sometimes articulated in a student *workprogramme*; in professional terms, an artist may develop a ***manifesto*** or more modestly, a ***statement***. This exteriorisation is also made apparent in catalogues, reviews and pamphlets associated with exhibitions, events, etc. In research terms, especially if the project is practice-led, then the procedure should be shaped in response to the characteristics and structure of the practice.

Design Procedure / Methodology in relation to Practice

The emergence of the study of 'Design Methods' in the 1960's grew out of the perceived need to exercise more control over the process of designing. This was in direct response to a world-wide dissatisfaction and lack of understanding of the traditional (implicit) processes employed by designers. Most of the literature on design methodology (Jones, 1980; Lawson, 1990; Cross, 1984) consolidates the view that it is impossible to create one definitive approach that would be applicable to all individuals and situations. What is apparent however, is the existence of identifiable rigorous procedures of design research

- invention, selection, synthesis, analysis, development, refinement and resolution - which are quite distinct in character from those of science. Although design procedures are highly personalised, there are common core characteristics which demonstrate some measure of universality. Most design methods have an inherent structure which at some point deals with:

- collection of data (visual, written, oral)
- selection
- analysis & synthesis
- testing against known visual and performance norms
- human reactions and responses
- compromise with regard to context, function, ergonomics, manufacturing & material constraints.

Design methodology is not a prescription for 'success' or 'good design'; it provides a fairly reliable framework within which human intuition, emotion and invention must come into play.

Common Factors

Russell, G.,
Seminar contributions and notes, 1993, RGU.
Gillian Russell has a Ph.D in Biochemistry, and worked as a post-doc. researcher in Molecular Biology for three years. She currently is a final year Sculpture student at Gray's School of Art, and finds strong parallells between creating sculpture and conducting scientific research. She suggests that "... it is almost (but not quite) as if art is already research, without actively having to do 'art research'".

Fine Art and Design procedures do share a basic structure for practice, which may provide a starting point for the development of research procedures. There are parallels also between the procedures adopted in the development / production of art/design work and the methodologies involved in structuring scientific research (Russell, 1993). When compared, processes involved in creativity, science, social science, fine art, and design appear strikingly similar, even though their contexts can be radically different. Common factors / activities are set out below:

- hypothesis / 'felt' need / urge to create / initial inspiration
- collect data / information gathering / incubation / generation of ideas / reflection
- definition of problem / selection / classification / analysis
- development / models / sketches / experiments / field work
- illumination / synthesis / articulation
- refinement / economy / resolution / presentation
- verification / testing / theory building / generalisation
- critical context / human response
- revise hypothesis / improve artwork / alter concepts

Some differences

The concept of generality in science (observing the particular and being able to apply this to the general) can not easily be applied to the art research model. The uniqueness/originality demanded of art is not easily

reconciled with the concept of generality, although a theory may be general to some extent, and may be derived from practice. Replicatability also seems completely at odds with the concept of uniqueness (Silver, 1993), although some art forms operate entirely through repeated multiples (printmaking, cast object sculpture, photography, performance, etc.) In the science model of research investigation can be confirmed by others, in the art research model confirmation and verification presents some difficulties. Confirmation may come from others working in the same 'ism' or 'group', which may reinforce the value of the practice and theory, or may cause the conclusions to be refuted. The work can be exposed to critical examination or testing, rechecking and refining. This process may be cyclical in which conclusions generate debate, which motivate others to act, which in turn generates new or different conclusions.

*Silver, S.,
'Originality and
Replicatability',
unpublished paper, RGU,
1993*

Postmodern Methodology

Even though there is a wealth of 'classical' and' modern' research methodologies (appropriate or not to artists & designers), no serious contemporary attempt at articulating research procedures in Art & Design can afford to ignore the impact and ideas of postmodernism (Appignanesi, 1989, provides a useful overview). We suggest that postmodern (research?) methodology is a double voiced discourse, radically eclectic, which accepts and criticises at the same time (Rayworth, 1993); traditionalism and futurism are both honoured and subverted, embraced and eschewed, in a double process of destroying and preserving that which has gone before, towards a new synthesis. The departure point for this discourse is specific, but the final destination is open-ended, thereby maximising resistance to single explanations.

*Appignanesi, L. (ed.),
'Postmodernism',
ICA Documents 4,
London: ICA, 1989*

*Rayworth, A.,
Seminar contributions and
notes, 1993, RGU*

From a postmodern perspective, the methodologies of the Newtonian sciences are accepted but refused their previously preeminent place, and are now seen as special cases of the more elaborate sciences of complexity (Lewin, 1993). Through the contesting of Cartesian and Platonic views, as systems of closed meanings, and the interrogation of the notion of consensus, we shall be allowed to reweave the recent modern past with local culture, and further the development of multiple coding with respect for minorities, difference and otherness. A Postmodern methodology therefore actively encourages cross-cultural collaboration. These ideas are supported and expanded upon by Paul Feyerabend in his book 'Against Method' (1988). Feyerabend suggests that anarchism should now replace **rationalism** in the theory of knowledge; the implications of this

*Lewin, R.,
'Complexity: Life at the
Edge of Chaos',
Dent, 1993*

*Feyerabend, P.,
'Against Method',
Verso, London, 1988*

Rationalism *refers to
knowledge derived purely
through thought and
reason*

on research methodology are revolutionary (and too complex to deal with in detail in this paper): in short, he suggests that:

> *"The only principle that does not inhibit progress is: anything goes .... Without chaos, no knowledge. Without a frequent dismissal of reason, no progress .... For what appears as 'sloppiness', 'chaos' or 'opportunism' .... has a most important function in the development of those very theories which we today regard as essential parts of our knowledge .... These 'deviations', these 'errors', are preconditions of progress."*

New Paradigms

ibid.

Although the 20th century has brought about dramatic changes in our perceptions of the world, it is apparent that, even within the last ten years, there is occurring what Capra (1983) terms a 'paradigm shift' - a turning point in all aspects of our culture, characterised by a more holistic, systems-based approach; such shifts are evident in physics, ecology, psychology, economics, political science, medicine, where mechanistic, reductionist notions are beginning to look obsolete. Mahoney (1990) supports this view with what he identifies as an 'axial shift' - "

*Mahoney, B., 1990, in:
Rudestram, K. & Newton, L.,
'How to survive your
dissertation'
Sage, London, 1993*

... away from a rational objectivism, which asserts that scientific knowledge is founded on objective empirical truths ... towards the conception of a more relativistic universe and 'poststructuralist' epistemologies."

The implications of these perceived 'shifts', postmodernism, recent theories of chaos and complexity provide the context for the development of new procedures in Art & Design. The progress of this development is also dependent on language and propaganda: to simply rely on standard research terminology will only propagate the existing scientific language bias in Art & Design research - '*neologisms* ' (visual and / or textual) and communication networks must be created (consider mathematical and musical notation); finally, all these ideas must be broadcast widely [Galileo's use of propaganda was essential, especially in the validation of the telescope as a methodological instrument (Feyerabend, 1988)]; artists and designers are particularly poor at exteriorising their processes, leading the rest of the world to believe that we do not have 'methodologies' or are incapable of inventing them. Bodies such as ELIA and ERASMUS, and other European networks have an essential role to play in this work.

Neologism *- a newly coined word, or phrase used in a new sense*

ibid.

Appropriate Existing and New
Procedures / Methodologies and Tools

ibid.

Allison (1992) outlines seven principle research procedures which have been applied to Art and Design research programmes. These are listed below:

- Historical
- Philosophical (theoretical)
- Experimental (pre-, post-testing, 'control')
- Comparative (cross-cultural)
- Descriptive (using surveys, causal-comparative methods)
- Naturalistic (interpretative, phenomenological, qualitative enquiry)
- Practical (creative, expressive / productive)

The first four could be termed 'classic' research methodologies, having gained rigour and acceptance in the wider context of research; the last three are less reflective of the 'scientific method', and more complementary to the 'artistic method'. These obviously provide a useful means of structuring research, provide specific details of method, and are to some extent validated, if still largely pseudo scientific / social scientific. (Specific methodologies are not described in detail here owing to lack of space to cover the topic adequately, however forthcoming papers* from Gray's School of Art will be directed more specifically to research procedures and their application to Art and Design research.) This is a starting point but by no means should it be seen as the ultimate list of possible research methodologies, there are others which are in the process of being developed.

*See papers -
'"Artistic" Research Procedure: Research at the Edge of Chaos?', in: 'Design Interfaces' Conference Proceedings, Vol. 3, University of Salford, 1995*

'Developing a Research Procedures Programme for Artists & Designers', The Robert Gordon University, 1995
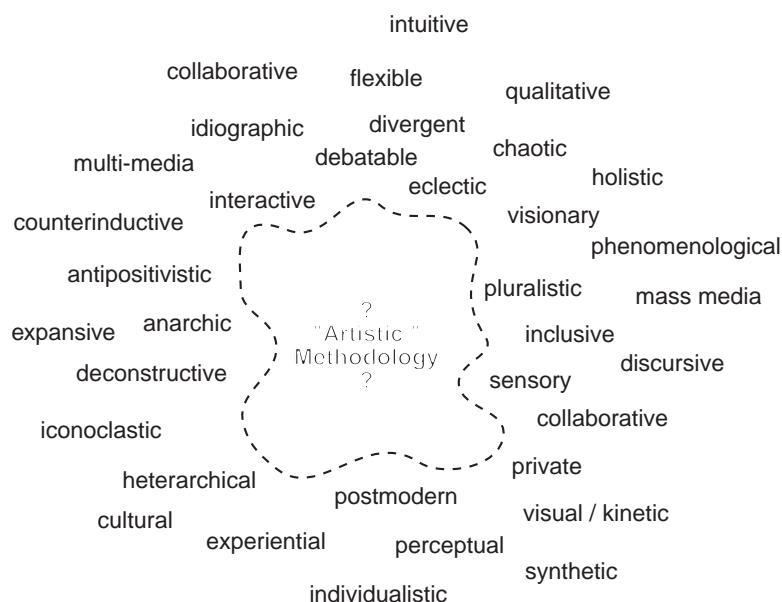
Douglas, A., 'Structure and Improvisation: The Making Aspect of Sculpture' Unpublished Ph.D, University of Sunderland, 1992

One of the most interesting developments in recent years is the emergence of Multimedia and compact disk (CD) technology. The CD is capable of storing text, moving and still images and sound. This makes it particularly useful for the documentation of visual research (Douglas, 1992). At present the cost of pressing a CD, which is capable of storing approximately 100 times the amount of information which can be stored on a magnetic disk, is in the region of £100 at time of writing (1993). The average text based Ph.D thesis could be stored on less than a few mega bites. CD-ROM technology would allow complete exhibitions/events to be recorded, and accessed either in a structured way (authored) or interactively (browsed).

Conclusions

There is as yet no universally accepted approach to research within Art and Design, so the traditions within other disiplines should not be ignored. New procedures must be based on both a cultural, contextual and specific response to the 'felt' need, and the nature of practice. Because of this relatively malleable state of things it should be possible to shape a new approach which is responsive to and incorporates the particular strengths of the various European approaches to research. These have yet to be defined in detail (a task perhaps for the ELIA Research Network, or through a further paper from ourselves).

It is clear that many of the tenets of scientific research have their equivalent in art and design research. Perhaps the main divergences lie in notions of generality, verifiability, replicability and universality. The main criticisms (from a classic scientific perspective) of artistic 'method' focus on the lack of objectivity and the often idiosyncratic nature of the work, perceived as often lacking rigour. Artists and designers are not good at exteriorising what they do. The creative process remains a mystery, artistic 'methodology' remains unarticulated. The aim of art based research should be to make this process explicit, taking advantage of contemporary technology. One of the most challenging and pressing issues for researchers in Art and Design today is to question and debate the nature of research, in order to propose an 'artistic method', a set of methodological approaches which are no less rigorous and respectable than those of the 'scientific method', but which are wholly appropriate to the nature of Art and Design. This paper offers a philosophical and practical context for this development.

intuitive

collaborative   flexible   qualitative

    idiographic   divergent
multi-media   debatable   chaotic
        interactive   eclectic   holistic
counterinductive   visionary
                                            phenomenological
antipositivistic   pluralistic   mass media
                    ?
expansive   anarchic   "Artistic"   inclusive
                    Methodology   discursive
deconstructive   ?   sensory
iconoclastic   collaborative
                                private
    heterarchical   postmodern
cultural   visual / kinetic
        experiential   perceptual
                                synthetic
            individualistic

12

Acknowledgements

** See papers -
'"Artistic" Research Procedure: Research at the Edge of Chaos?', in: 'Design Interfaces' Conference Proceedings, Vol. 3, University of Salford, 1995*

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