



Design Education Research Note

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Design in General Education
- a comparative introductory review

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Introduction : Design in General Education

The position of design education in the curriculum of our schools is one which is surrounded by issues which are unresolved and often irreconcilable. Definitions of what design education is lack agreement and span a range of interpretations, each of which has its own partisan argument. Discussions concerned with its role in an advanced technological society co-exist with the eternally prevailing debate in the 'art world', which attempts to reconcile practical work and industrial training with academic excellence and artistic endeavour. However, inherent in all such interpretations is the assumption that Design has an important and teachable function in various areas of concern.

The argument which considers 'Design' not so much as one particular facet of a more general discipline but rather as an independent discipline on its own, has been put forward in recent years. Central to this idea is the notion that Design is a neglected area in education. Archer (1976) presents the view that Science and the Humanities have traditionally dominated the curriculum and aspirations of schools and teachers but that there exists a third neglected area of education - Design. He maintains that the basic skills and 'ways of knowing' of Design should be regarded as much a fundamental aspect of education as are literacy and numeracy, instead of being treated as a specialised subject or group of subjects.

Without precisely defining or describing these basic Design skills, Archer categorises them under the term 'design awareness'. As a concept, therefore, 'design awareness' relates to Design as literacy and numeracy relate to the Humanities and Science respectively.

The comparison of Design as an intellectually undeveloped discipline with Science and the Humanities as established and academically sophisticated areas of knowledge is a constant theme throughout Archer's paper. Using this comparison he argues that the basic skills relevant to each of these disciplines, i.e. design awareness, numeracy and literacy, have received unbalanced amounts of resources and attention in the curricula of our schools. The bias in favour of literacy and numeracy, he deduces, is a major reason for the lack of intellectual development in the area of Design.

In presenting this argument, Archer attempts to surmount the difficulties associated with defining Design as an area of knowledge. As evidence of the value of design as an activity he points to the world of artifacts and speaks of 'the collected experiences of the material culture' which 'fills our museums and galleries, equips our homes, constructs our cities' and 'constitutes our habitat'. As an intellectual procedure which distinguishes this third area of knowledge from Science and the Humanities, he states that there is an approach to knowledge and a manner of knowing which is distinct from those of Science and the Humanities and which is 'based upon sensibility, invention, validation and implementation'.

In general, Archer's paper reviews the arguments for the case for an enquiry into 'Design in General Education'. Beginning in January, 1974, the enquiry was led by Professor Archer and conducted by a team at the Royal College of Art for the Department of Education and Science. In the light of the definition of 'Design' as given in Archer's paper, the

purpose of the enquiry was to examine the educational provision made for the teaching of 'Design'. In Part One of the four-part report (RCA, 1976), major findings were:

'We believe that this area of education has been undervalued and insufficiently developed.'

'Progress toward the development of a recognised pattern of design education has been hampered by resource management problems and career development problems in schools and by lack of intellectual and moral support for teachers in schools by the equivalent scholars and teachers at tertiary level or by the institutions at professional levels.'

'Lack of scholarly and social regard for the skills of making and doing has a long history and is reflected in the structure of society as well as in education.'

'There exists a need for a more fundamental, scholarly and integrated approach to education in the pressing issues of the material culture and the kinds of knowledge embodied in planning, inventing, making, doing and judging.'

The work of Archer and the R.C.A. team clearly indicates that Design as a third area of education has not been developed to the same extent as Science and the Humanities. The responsibility for this development is placed to a large extent upon scholars and educationists at the higher levels of education, i.e. universities and the professional institutions.

Educational Criteria

If Design then, is to be considered as basic to general education, it must be amenable to the usual meanings of basic or general education, i.e. an education which is, in principle, non-technical and non-vocational. It can only achieve parity with other disciplines therefore, by:

- (a) being organised as an area of study not unlike the Sciences and Humanities.
- (b) providing instruction in concepts and methods of enquiry appropriate to life-long learning, and
- (c) attempting to foster an understanding and appreciation of the contributions that design activities and specialisms make to the individual's life and the lives of others.

The comparison drawn, therefore, between design and other well-established disciplines, may, by adopting similar educational approaches, become a useful one.

In Education, interaction between three differing levels of activity is important for development and progress in a particular field. These levels of activity are conducted by:

- 1 Scholars and researchers who develop ideas and provide the basic research.
- 2 Educationists who absorb, translate and suggest ways of utilizing the basic research.
- 3 Teachers who apply and test methods and findings and provide feedback for further research.

In the areas of Science and the Humanities interaction between these levels of activity is well established and its effectiveness is apparent at all age levels of educational provision. The teaching of literacy and numeracy even extends to a recognition of the value of pre-school activities, methods and approaches.

In the area of Design, Archer's work lends support to the suggestion that the interaction between these levels has never been effectively developed. Further support to this idea is given by practising teachers of design, who feel that they could be better equipped with information which is not widely available. For instance, Jennings (1976) acknowledges the work of the educational psychologist Benjamin Bloom in defining educational objectives and Robert Mager in preparing instructional objectives. He refers to the behavioural psychologist B.F. Skinner, whose work on operant conditioning has influenced our knowledge of the learning processes. In the conclusion to his paper, Jennings writes:

'It seems a tragedy that so much time, effort and money is being channelled into research yet so few teachers are either aware of its findings or are prepared to implement the information available. The desirability of applying such information will be conceded by many, but the practicalities involved and the constraints against such a possibility ever arising in more than a few progressive schools must be acknowledged with regret. The debate must, however, continue around the question "How can research findings and educational theories be implemented?" '

Cameron (1977) offers a critique of the existing situation in many schools, where 'design departments' are being created out of the old art and craft subject areas, often in a confused and ill-considered amalgamation. Teachers, she says, "are wondering just what they should be doing" amongst a confusion of ill-conceptualised, secondhand ideas.

As she develops her argument, Cameron is quite explicit in directing responsibility for change away from the school situation and towards the educationists at higher levels of education.

'No amount of departmental reorganisation will change what is taught, the nature of those teachings or what is learned by the pupil. What is learned is entirely dependent upon the understandings of the teacher and how those understandings are applied to teaching situations and it is here that any changes in the nature of art and craft education will occur and possibly here, in the area of teacher training, that any concentrated effort for development or change should be directed.'

The 'New' Design and the Old

A wider interpretation of Design and its development into an established area of education equivalent to Science and the Humanities clearly requires educationists working at a higher level than the schools. If the new Design area has intellectual content, then those educationists have the responsibility of working toward the development and widescale adoption of intellectual procedures to be applied at schools level.

Design awareness as an educational concept implies the development of cognitive, affective and motor skills in young people. This, in turn, implies intellectual content and the adoption of appropriate procedures in educational method and techniques. It is this idea that the 'new Design' has intellectual content which is difficult to reconcile with the inherited legacy of educational provision in this area. Blockages to the application of research in the schools and the interpretation of the new Design in its wider sense, are inherent within the existing schools framework. The traditional status of those schools, the teacher training procedures, teaching methods and the content of those subject areas traditionally associated with design are still maintained, despite attempts to reorganise the educational system on a national scale.

The inadequacies of the teachers and their training and also the inadequacies of the institutions in relation to status and resources can be traced to the history of secondary education in the U.K. Traditionally, the institutions provided for the teaching of design subjects have been concerned with the teaching of technical skills, crafts and trades. Their courses were essentially practical, based upon manual work, often part-time and in effect associated with methods of teaching more aligned to processes of training as opposed to education.

The need for Technical High Schools, Technical Colleges and courses in technical subjects has been the subject of many educational surveys and reports. Hadow (1926), Spens (1938) and Norwood (1943) preceded the 1944 Education Act, the establishment of a tripartite system of education and the growth and development of technical institutions in England and Wales. Within the technical institutions, intellectual content of the courses they offered was explicitly denied.

'The various kinds of technical school were not instituted to satisfy the intellectual need of an arbitrarily assumed group of children, but to prepare boys and girls for taking up certain crafts - engineering, agriculture and the like.'

(Norwood Report, 1943)

Justification for selecting the most suitable candidates for this particular form of training is given by Norwood, thus:

'The evolution of education has, in fact, thrown up certain groups, each of which can and must be treated in a way appropriate to itself. Whether such groupings are distinct on strictly psychological grounds, whether they represent types of mind, whether the differences are differences in kind or degree, these are questions which it is not necessary to pursue.'

After 1944, the tripartite system of education which was established, maintained the low intellectual status of technical, art and craft courses by ensuring that the people with the best intellectual abilities attended the grammar schools which prepared them for universities, i.e. study in Science and the Humanities. It is likely, therefore, that in the subject areas of Science and the Humanities, closer links between schools, universities and teacher training colleges explain a greater teacher effectiveness, than exists within the subject area of Design.

If Design education is to receive parity with other disciplines, many traditional attitudes associated with its learning must therefore be adjusted. Its place in the curriculum of

schools clearly cannot be one which involves the reorganisation of traditional art and craft subjects into an amalgamated department and merely given a new name.

But is 'Design' really developed beyond discussion, enough to be in a position to demand parity with other disciplines on a basic educational level? What evidence is there to suggest that there is sufficient knowledge of the nature of design skills, abilities and 'ways of knowing, or how they develop in the individual? Is there sufficient knowledge and understanding of the design processes in the individual to enable judgements to be made as to methods of teaching and organisation of relevant subject material? In considering these questions, it is not unreasonable to look for textbooks which would explain the fundamental ideas, concepts and processes. For teachers and intending teachers, one would expect to find books which give both an understanding of the concepts and also appropriate, tried and tested methods of teaching, backed up by relevant research data.

A Comparison : Teaching Numeracy and Literacy

However, if we compare the amount and kind of advice and information available to teachers of design in schools with that given to teachers of mathematics, science, reading, or English language, the degree of reference to established educational theory and principles and its influence upon practice is found to be lacking in the area of design teaching. To talk vaguely of basic design skills as 'design awareness' and assume that such a concept is teachable - neglected though it may have been - does not actually help in the teaching situation. What exactly are these skills and abilities? To illustrate the lack of understanding or communicated knowledge in the area of design

we can compare the books currently available in design education with representative books written for teachers and intending teachers in the areas of literacy and numeracy.

Literacy and numeracy textbooks define and discuss skills and abilities with a degree of organisation and depth of understanding of the processes which is unfamiliar in design textbooks. In both areas understanding of the respective processes is not clouded by lack of agreement as to their nature even though they are equally as complex (if not more so) than design processes. On the contrary, it is well recognised that - like design - both literacy and numeracy are complex processes which demand a high level of integration and maturation of a wide variety of abilities and skills.

The presentation of both concepts demonstrates an approach to knowledge and methods of organising it to allow diverse interpretations of the processes to be made and at the same time add to an understanding of their complexity. For example, difficulties in defining the reading process - corresponding to difficulties which are encountered in attempts to define 'design' - do not lead to bold assertions that it is either one thing or another. Spache and Spache (1973) do not adopt a partisan attitude in organising information for the teacher's understanding. All the information is marshalled and no attempt is made to simplify a very complex concept. Reading is presented as having multiple definitions, e.g. as:

skill development;
 a visual act;
 a perceptual act;
 a reflection of cultural background;

a thinking process;
information processing;
associational learning.

Each interpretation is discussed in relation to the research and theories which supports it. Also, each is acknowledged as providing only a partial understanding of the complete process.

Similarly, Moyle (1968), Schonell and Goodacre (1974) and Bamman, Dawson and McGovern (1973) discuss the nature of the reading processes and draw attention to named skills and abilities. They discuss methods of teaching in relation to the development of the individual's abilities and skills and offer guidance on the selection of appropriate methods and procedures at the various stages of the developmental process.

In the area of numeracy, similar approaches to knowledge and the organisation of knowledge are demonstrated. Downes and Paling (1958), Johnson and McNearney (1974) and Copeland (1974) are selected almost at random as representative of the many excellent textbooks available for teachers and intending teachers at the elementary level. Even a superficial examination of these literacy and numeracy textbooks shows that all feature a balanced approach to the main issues involved. Controversial questions, such as the influence of heredity, environment and maturation on the acquisition of skills and the child's 'readiness' for learning are discussed in a scholarly manner, taking into account relevant research findings. All books assume the necessity of introducing the concepts in the early years of life.

The Current Situation in Design Teaching

In turning to the area of Design it is clear that sensible, practical books similar in educational approach to the ones outlined above do not exist for the intending teacher. Although the argument has been offered (Archer, 1976) that design awareness is a concept equally important to Design as literacy and numeracy are to the Humanities and Science respectively, there are no equivalent books upon the development of design awareness in children as a concept embodying the basic skills and language of Design. Current available books on Design are aimed at Secondary School level, and although Science, Mathematics, Art and most 'practical' subjects provide books which may contain relevant subject matter, at lower levels of education it is evident that 'Design education' as such is constituted of material which is being taught in specialist areas for other purposes than those which satisfy the requirements of a bone fide third area in education.

Some recent publications in design education are Green (1974), Baynes (1976), Eggleston (1976) and Harahan (1978). Together they are representative of the nature of the material available for intending and practising teachers of Design.

A characteristic feature of all four books is the predominance of straightforward project descriptions. Harahan's book is simply descriptions of eight individual projects conducted in different schools. Eggleston also allocates a very large section of his book to project reports. Baynes devotes a chapter to project descriptions, and finally, Green provides a book wherein the largest part consists of illustrations of solutions to art-based 'design' problems, each with its problem statement printed alongside. The intermediary processes between problem and solution are not indicated.

Mere examples of suitable exercises and projects do not help teachers to aim for an appropriate teaching level, or to transfer what they have gained from this reading to their own teaching situation. A project description may be useful to catalogue a series of activities, but it does not allow much insight into where, if at all, the particular project fits into a developmental scheme, or process of education on a wider scale. None of the reported projects indicate the previous levels upon which they are building, or how they relate to subsequent and more complex stages of the educational process. The project method is accepted as a valid vehicle for design teaching, but none of these books consider the 'project method' as an educational method in terms of educational theory or in relation to other valid teaching methods.

In general, these books encourage teachers just to follow the example of other teachers by inference and emulation, in the absence of stated educational principles, objectives and methods. However, all four books do attempt to widen the traditional concept of design education, with varying biases.

Eggleston discusses design education in terms of a widening of craft education which 'has been achieved by the teachers and students themselves in their response to the new opportunities that have become available in the past decade. While still building upon the traditions of the past they have brought about the change that now allows us to redefine this area of the curriculum as "design education".'

Green sees the new area of Design in the light of the changing role of art education. 'One of the problems facing the art educator in a changing society is the need to re-assess constantly his role and the function of his subject.'

Baynes offers a more comprehensive discussion of Design and his book emerges as an informative review which explores his interpretation of the meaning of Design in the twentieth century.

Some recent publications associated with the Schools' Council's Design and Craft Education Project deal with particular aspects of design education. Again, these show a bias toward a widening of the existing craft based approach to teaching, with a particular reference to the needs of the older age groups in the secondary schools.

Design for Today (1974) acknowledges that 'Craft teachers have long been aware of the need for research into the practice and objectives of craft education'. Yet a limited interpretation of 'research' is indicated as the book then proceeds to document twenty five case studies of successful projects carried out in various schools.

Materials and Design - A Fresh Approach (1974) examines 'design approaches' as they are demonstrated in Design for Today and attempts to relate these approaches to the needs and interests of the students. However, further analysis shows that these 'needs and interests' are defined as being related to 'the home, the community, leisure activities and work'. In other words, these are the constraints which operate on the organisation of subject material. The 'needs and interests' of the student are not considered in terms of the student's educational development.

You are a Designer (1974) presents aspects of the conventional design situation for consideration. It is a 'reference book' for the student, to be used when he 'thinks it will be helpful'.

Looking at Design (1975) consists of a series of filmstrip frame reproductions and commentaries. Fourteen subjects - including shape, form, colour, texture, ergonomics and materials and tools - are covered in nine filmstrips. The aim is to introduce certain principles essential to design and craft work. What these principles are must be inferred, because they are not stated as such.

The collective impression given by these Design publications is one of confusion. The subject matter is so varied and the books present so many obvious biases in approach and understanding that it is difficult to emerge with a coherent idea of what it is all about. To attempt to relate educational theory and principles to an area which is presented as a confusion of separate ideologies, must remain a trial and error situation for most teachers.

In contrast to the textbooks on literacy and numeracy which were discussed above, none of the Design books show evidence that they could provide, or at least fit into at a defined level, a coherent comprehensive and developmental scheme or process of education. Such a scheme would incorporate:

- (a) A recognition of the necessary skills and abilities as they relate to practical and intellectual procedures associated with the discipline area.
- (b) An introduction to the concept as an educational process in itself.
- (c) An understanding of the successive levels of development in both human capabilities and complexity of subject material.

- (d) An awareness of educational methods and techniques as they relate to both educational theory and practice.
- (e) Practical advice which allows the teacher flexibility of teaching approach whilst fulfilling his/her own aims and purposes and the needs of his/her particular students.

From the survey of the Design books outlined, it seems that Design is generally being taught by designers, who may be skillful and well-informed in a particular specialist area, but this does not necessarily equip them with knowledge of educational procedure. Nor does this educate them to interpret design studies in their wider sense. The problem is summarised in the Royal College of Art report:

'Colleges of education have played a small role in the development of design studies but they have been severely hampered by their fragmentation into specialist courses. They have been, in practice, a microcosm of the difficulties and confusions that have afflicted design education as a whole. Until very recently there were only a handful of initial and inservice courses in design. These have contributed their impetus, but the present situation is that most of the teachers who are teaching in design schools have been educated as specialists in either art, handicraft, or home economics and often at colleges or departments exclusively devoted to one or another of these specialisms.' (RCA, 1976).

If Design is to become a third area in education, a fundamentally different approach to traditional methods of teaching and the education of its teachers is needed. An area of education requires an educational approach to its development.

If, in the areas of Science and the Humanities, educationists at high levels of education can assume responsibility toward the development of the subject area and the teaching within that area, it clearly yet remains to be assumed by educationists in the area of Design. Some small movement in this direction has begun. However, it is clear that Design as a third area in education is still in a foetal stage of development. Educationists, therefore, at University and professional levels have a large responsibility towards its future growth and development.

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