

The Relationship of Art and Design to Design and Technology in the National Curriculum in the Primary School

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This paper argues that the role of art is not being fully acknowledged in the primary school and that this will hinder the successful implementation of design and technology. The first part of the paper looks at some current interpretations of design and technology. The second part describes the processes of art and design and technology and views on the relationship between the two curriculum areas are discussed.

The National Curriculum has caused a radical revision of the way in which educational values are assigned priority. The core curriculum requirements of English, Mathematics and Science have led to the appraisal of the educational priorities operating in schools. More specific teaching aims have been identified. In particular, schools have tended to concentrate on the assessment of provision in mathematics and science.

The specification of teaching aims and objectives can only serve to focus thinking and give a sense of purpose to teaching. If we are unclear about what we aim to achieve with the children in our care then we are surely failing in our duty to educate. However, the emphasis on children 'knowing that' in science and mathematics has caused anxiety in some schools. Many teachers have felt a pressure to learn the body of knowledge that is apparently required for science work. The assumption being that this knowledge is needed if we are to facilitate children in their journeys towards the goal of specific attainment targets.

With such a firm and unfamiliar emphasis on science it is little wonder that the new subject specialism of design and technology tends to be understood by many in the same scientific terms. The view that design and technology is simply the application of scientific principles through 'making and doing' is an obvious and accessible pathway for the understanding of an approach to learning that is radical and alien to many. This

interpretation is reinforced in current books available for teachers which generally contain information of techniques and provide recipes to ensure the production of successful working models.

The second attainment target in the Design and Technology National Curriculum (1990) is concerned with the capability to generate a design. Drawing and modelling are anticipated as appropriate means whereby even young children may convey their design proposal. The generation of a design proposal is a linguistic term that is new to the primary classroom and more synonymous with the type of industrial aims and considerations discussed by Nadler (1989). This paper does not aim to dismiss the necessity for primary education to look to the future and consider the wider needs of society and industry as a whole. However, it is relevant that we should question the use of product design terminology at the primary level. We may be in danger of relating our aims to industrial needs in preference to the aims of good primary practice. Such unfamiliar terminology also serves to reinforce the more industrial and scientific associations of design and technology in the minds of teachers new to the subject area.

Barrett (1979) suggested that, in comparison with the increased awareness and heightened ability of other subjects to be articulate about their area, art education has been served badly by national institutions and by the unwillingness or inability of art teachers to formulate a case to justify and clarify the important function they are performing in the curriculum. He claimed that art was losing ground because of its apparent inability to articulate its case. If, in the past, art has found difficulty in justifying its own aims in this manner then it is little wonder that the value of art in design and technology is generally not being recognised and, most importantly,

practised. There is a lack of understanding. Many primary teachers are unsure of their role and aims when teaching art.

The view, expressed by Eisner (1972), that the prime value of the arts in education lies in the unique contribution it makes to the individual's experience with, and understanding of, the world is a premise that is frequently translated into classroom practise. The view overstates the cause of individuality as the aim of art education and leads to idiosyncratic and subjective arguments being used when it comes to appreciating and assessing what is done. Therefore as Gentle (1984) points out the teacher's exchanges with children can only remain on a subjective level of personal preference. Art is merely a subjective exploration and there is no structured direction for teachers to take. The result is that either art is considered an undemanding and gentle play activity for the afternoons or conversely the teachers personal value judgements prevail and pervade the classroom. Exploration is narrow and limited by the teacher's personal view of 'good' art. Experimentation and risk taking are eliminated and any inhibitions confirmed.

In more recent years however, writers such as Barrett (1979), Barnes (1987) and Lancaster (1990) have served the cause of art well and helped to justify its vital role in the primary curriculum. Most importantly the Interim Report of the National Curriculum Art Working Group (1990) clearly defines the processes, content and role of art. The processes of art are organised into three interrelated areas. It is assumed that one area will take priority when embarking on any particular project. This paper will now specify these aspects as defined by the working group and then relate their view of the contribution of art to design and technology. The design and technology attainment targets will also be described.

Attainment target one is concerned with understanding and evaluating art. Within this attainment target it is expected that children should describe and evaluate their own work, relate their own work to that of other artists and designers and appreciate art in a wider context. This entails appreciation that there are different kinds of art because images, symbols and artefacts are made to meet different social, cultural and practical needs.

The second attainment target is simply termed 'making'. Children are expected to show a practical understanding of basic methods of working with a limited range of materials and tools, to work singly and in groups to produce large and small scale work in two, three and four dimensions. They should explore basic aspects of the elements of art and design including line, tone, colour, pattern, surface, shape, scale, form and space. They should gain an understanding of the making processes and be able to discuss the relationship between what they have made and how they have made it.

Attainment target three relates to observation, research and developing ideas. A variety of drawing methods should be used to record children's observations from first hand experiences. They should collect, organise and use information from a range of resources as a basis for making images and artefacts and they should be able to describe and discuss their response to a range of visual resources.

The contribution of art to design and technology is seen as fundamental. It is acknowledged that the success of enterprise is depending increasingly on the way businesses combine functional and aesthetic requirements. The document states that due to this it will be increasingly important for children to learn the aesthetic and functional requirements of design from an early age. The role that art has to play in design and technology is emphasised alongside the other objectives of art education. In the listing of the contributions that learning

in art makes to design and technology capability specific skills are identified such as drawing, handling materials, the understanding of techniques and the critical skills and judgements about the aesthetic dimensions. The report further claims that good practitioners in art teaching frequently adopt the function of providing first-hand experience of projects in which pupils learn by and through their own efforts. It is considered that these teachers are expert in providing good design experiences such as those required by the design and technology curriculum.

Unlike art, the National Curriculum organises the design and technological processes into four attainment targets. Attainment target one is identifying needs and opportunities for design and technological activities through the investigation of contexts. Attainment target two is devoted to generating a design. This involves the exploration of ideas of what they might do and how they may try to achieve what they desire. Talk, pictures, drawings and models are seen as possible means of communication. The third attainment target of planning and making involves knowledge and use of materials and tools and the ability to express what they are doing and how they are trying to do it. Finally the fourth attainment target involves evaluating both the results of their design and technological activities and those of others including those from other times and cultures.

Although the Non-Statutory Guidance for Design and Technology (1990) states the design and technology is particularly closely associated with science it is acknowledged that as a curriculum area it draws on the knowledge skills from many other subjects. An holistic approach is hoped for claiming links throughout the curriculum. How, and to what extent the programmes of study should draw upon different areas such as art is not clearly stipulated. This therefore becomes an issue for curriculum management within each school or for individual teachers. It

will now be argued that without a full appreciation of the role of art in design and technology, our delivery of this curriculum area will be limited and unsatisfactory. Both areas are interrelated and the substance of each is very similar. Furthermore, if primary teachers become more knowledgeable in the philosophy and methods of art teaching then starting points for work with children involving evaluation, designing and the identification of needs will become more apparent.

Allison (1990) illustrates that throughout history, art and design has depended upon and, in some cases, initiated technological developments. He points out that some form of technology is essential for any kind of art and design production, and that in educational terms, the technology of art and design is not only a major part of the subject but is also a primary vehicle for learning in art and design. He gives an example of, at the simplest level, a crayon drawing saying that the particular characteristics of crayon as a material are inseparable from its use as a medium. So interrelated are the areas of technology and art and design that not only is the technology of art and design a major means whereby artistic intention is realised in visual form but that technological processes provide an essential way of conceiving artistic intentions.

Barnes (1987) also refers to the interlinking of technology and art when he describes how the attention to the subject matter or content of the art work — the lines, colours and shapes — is helped and hindered by the materials used. He says that the resulting work is a compromise between what the artist wants to do and what the medium will actually allow. Compromise is again mentioned when he states that art allows children to learn the compromise between what they see in the mind and what ends up on paper. As design and technology is essentially about the compromise and balance between constraints and intentions then parallels are clear.

Design and technology, like art, is essentially a process that is recognised as a whole and identified by its facets. In both subject areas the National Curriculum breaks the interrelated facets into a graded system in order to aid teaching and ensure awareness of progression. Each of the interrelated parts responds to change in the others. It can be argued that we have also divided design and technology and art into separate curriculum areas to help us structure delivery. However, the processes within each area are inherently the same and we must acknowledge the depth of interrelationship throughout all of their stages. Without acceptance of this principle then art may be considered the final stage of a process by 'dressing-up' a functional artefact and this would be to ignore the value of aesthetics.

Aesthetic appreciation and understanding is vitally important to the quality of life. As Lancaster (1990) says, it is through a sound education in art and design that children will be lead to a consciousness of the value of aesthetics in what they do and they will fight for a well-considered visual quality in what is conceived. He argues that in experiencing and using the basic elements of 'visual grammar' in making art they will expand their aesthetic understanding not only for their own fulfilment but also for the future good of society.

Design and technology requires that children should evaluate artefacts, systems and environments. It is not possible for children to give a considered evaluation of the processes, products and effects of their design and technological activities if the perspective of aesthetic judgement is lacking. This becomes more problematic when evaluating the design and technological activities of other cultures. As the Art Working Group state, art has a formal technical and conceptual language that must be systematically learned if skill, knowledge and understanding are to grow and mature in a coherent way. Only when this 'language' has been acquired will they be

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in a position to move freely and creatively through the levels of their art and design education. Without this visual language the comprehensive evaluation of systems, artefacts and environments is not possible. When we consider how vision-conscious our world is today then it is clear that this visual perception is essential.

Attainment target one of design and technology demands that children identify and state clearly needs and opportunities for design and technological activities through investigation of the contexts of home, school, recreation, community, business and industry. The contexts for activity become progressively more removed. By necessity, when teaching children in their early years, close exploration of contexts which are close to their personal experiences must be the first step in any design and technological activity. The 'need' must be close to themselves. As the art document states, the importance of art in the lives of preschool children is clear to anyone who has observed the concentration and delight which they bring to drawing, painting and assembling things. Obviously art is fulfilling a 'need' that is very natural and important to the development of the child. Art is a process that is fundamental to life. Therefore there can be no better route into the development of the identification of needs and opportunities for design and technological activities than through the employment of artistic experiences.

It is possible that our use of language has aided the artificial separation of art and design. Although drawing may be involved in designing it is not taken for granted that the two are synonymous. The French word for drawing is 'dessein' and the Italian 'disegno'. Drawing and designing are not differentiated as they are in the English language. Drawing is designing. Perhaps our use of language has taught us to unnecessarily conceptualise designing and drawing as separate entities. By concentrating and

developing children's drawing skills we will be informing and developing attainment target two of design and technology, the generation of a design.

The artist conveys a new way of looking at the world. Most usually the subject of an artist's work is common and familiar. What is unfamiliar however is the particular unique representation. Development in design and technology is reliant on the ability to look at the common and familiar and see or apply it in a new way. By definition the content of our world is finite. Therefore development must depend on this ability to use the imagination and think creatively thus applying the finite in an original way. Progress depends on this ability to see things from a new angle. The ability to look at life from a different perspective is also an invaluable personal skill. Art is the most major route in which we can encourage this creative exploration.

In conclusion, the art working group claim that good practitioners in art teaching are expert in providing good design experiences such as those required by the design and technology curriculum. Art education writers such as Gentle (1988) provide clear guidance on teaching styles and methods that will support and inform primary teachers in their work. If we learn from art and allow ourselves to think imaginatively, creatively and freely, and we do not fear that we should know all of the answers ourselves, then we will be opening the doorway to the provision of excellent design and technological work in our schools.

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Acknowledgement

Geoffrey Bailey, Roehampton Institute.

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