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# **Toward a New Approach To Design Education**

We are all designers. Designing is a part of life. It is the way we make and assemble the things we need for the way we like to live, or have to live. It is a way of organizing both the tangible and intangible structures of our lives, the structures which we form and which then in turn form us. In designing these structures we balance an inward knowledge of ourselves with an outward knowledge of the world. We learn to interact with the social and physical environment that surrounds us, to accommodate the needs of others within our purpose, and adapt our purpose to their needs. At the professional level, designing is an interdisciplinary process in which methods of scientific, technical and artistic investigation are combined with an understanding of human and functional needs to modify and affect almost any aspect of the environment.

## **the development of design education**

Design programs, both for schools and for the professional designer, have generally been quite narrow in their approaches. The design profession came into existence largely in answer to the needs of the industrial centres of Europe and North America. The Staatliches Bauhaus school, which opened in Germany in 1919, had one of the first, and ultimately one of the most influential, schools of industrial design. Here it was fully accepted that machines could now produce well-designed products and at a price that most people could afford. The objective of the school was to train artist/designers who would determine what these products would be. In the last ten years, many design schools have placed an

increasing emphasis on identifying and solving problems creatively. This direction seems to have been influenced by studies on developing creative ability, particularly in the fields of science and technology. Many of these studies were at first initiated and largely supported by American industrial and government groups which were concerned with the apparent threat of Russian technical superiority evidenced by the launching of Sputnik.<sup>1</sup>

Both the Bauhaus and subsequent schools of design have been primarily directed towards providing designers for industrial development. But, more recently, some practising designers and schools have started to question whether the products industry is asking them to design should in fact be created and manufactured at all. A concern with the problems of over-production, the depletion of natural resources, pollution, and obvious social and economic inequalities even in the rich countries of the world, has led some designers to study the broader implications of their profession. They are endeavoring to become better acquainted with the cultural, social and physical needs of a much larger segment of society. Less emphasis is being placed on the development of technology and more on making at least some effort to determine the circumstance under which living things thrive best in balance with each other. This concern is leading some designers to form a closer working association with the disciplines of sociology, anthropology and psychology.<sup>2</sup>

The purpose of relating the design experience to schools is not to make everyone a professional designer. It is intended to provide students with an understanding of the design process so that they will be better able to articulate, in social, cultural and physical terms, their own needs, while comprehending the needs of others. With this experience, they can be more effective in suggesting alternative structures and working with professional designers to achieve them. No broad concept of design education has as yet been formulated for schools. Design, if it is taught at all, is usually found either in the art program, where it relates mainly to identifying the visual qualities of two and three dimensional compositions, or in the industrial arts program, where machine technology is taught and products are designed and made. In these programs few attempts are made to work with other disciplines or with the community. However, in some instances design is introduced as an expressive and applied component relevant to almost every discipline.

## design education in schools

Helping children to undertake design projects of their own can provide an opportunity for supporting many of today's educational objectives.

- As the process of designing involves relating, exploring and applying artistic, social, technical and scientific concepts within a single project, it can be used to integrate any of these subject areas.
- As an objective of the design process is to affect the environment, it can lead to the students' involvement in projects outside the school and therefore bring the school and community into closer contact.
- As the circumstances of every design project are unique, a new answer must be found to each situation. This encourages children to suggest answers to problems for which no one has as yet got a "right" answer and then to test their proposals. Such projects have the potential for structuring an exploratory, creative and child-centred approach to learning and also one which balances both verbal and non-verbal forms of expression.

The Vancouver School Board Recreation Department has undertaken a program which introduces children to the full design process. For example, in this program, any group of 5th and 6th grade children who want a playground are encouraged to select a site and develop a plan. The children have to consider how they want to use the playground; whether they want to climb, or crawl or swing; to build a castle or to find a boat they could use; whether older and younger children should be separated; if and how adults, parents and old people should be included; and what sort of supervision, if any, might be desirable. The children then approach various experts such as recreation specialists, landscape architects, contractors and engineers to consider safety factors, availability and suitability of materials, methods of construction and cost factors. They have to be able to raise half the cost of the playground within their own community either through donated materials and labor or by fund raising. Then, with all these considerations in mind, the children design their own playground and make drawings and models to communicate their ideas. When their plan is ready, they present it to the Vancouver School Board for approval. If the scheme is accepted, the school board matches the amount the children have raised

in the community and the children are able to go ahead and build their playground.

In the summer of 1972, students from the McGill School of Architecture, who were supported by a Federal Opportunities for Youth Grant, organized two somewhat less structured adventure playgrounds in Montreal.

## relating design education to child development

Obviously, it is important to relate new school programs to the overall development of the child. In *Fantasy and Feeling in Education*, psychologist Richard Jones discusses the possibility of a complete theory of instruction and provides an appropriate framework within which to consider the relationship of the design process to child development. He suggests that the objective of instruction is to develop "imagination plus community plus mastery, which produces creative learning," as well as the ability to solve problems effectively. This is perhaps more easily understood by considering the polar opposite which he defines as "imagination plus aloneness plus helplessness which produces anxiety which may have to be released by psychotherapy."<sup>8</sup> Imagination combined with a sense of community and mastery can be developed through experiences in designing. Imagination is strengthened in a search for new solutions; a sense of community is developed because, in most design projects, a group works together to produce something for themselves or for a larger group; and a sense of mastery is developed first through the manipulation of tools and materials. It is this development of a sense of mastery which is particularly relevant to the subject of "Technology and Education."

The creative process in which artists and designers are involved is closely related to exploration in different media and to mastery of the skills that they demand. However, it is not enough to be taught a skill in a limited context for a specific goal. The relationships and properties of tools and materials must be understood and felt so well that they can be used in new ways to attain a wide variety of goals and solve a wide variety of problems. Much of this has to be self-taught. A designer will often "play" with tools and materials until he thoroughly understands their inherent properties.

In their book *Understanding Children's Play*, Hartley, Frank and Goldenson<sup>4</sup> have documented the stages which a

child follows when he is free to explore clay, or any other medium, in his own way. First the child will handle, feel and perhaps even smell and taste the clay. He will then try to make impressions on it, pounding or poking the clay, or turning a brace and bit and watching it cut into wood. At the third stage, something that happens during the earlier exploration will suggest an object to the child and will be used as such in his play — a shape becomes a car, for example. It is only at the fourth stage that the child will start to conceptualize an object and then make it with the tools, materials and processes he now thoroughly understands. Through this process, the child learns to set goals for himself which he has developed the competency to attain.

Unfortunately, many teachers direct the child to start at the fourth stage by such comments as “what are you making?” or by the suggestion that he make something specific. Thus the child loses the opportunity to develop his own ability to explore, understand and manipulate the materials. By starting at the fourth stage, the teacher also provides the child with a goal before he has had time to develop his own and acquired the skills to achieve it. This leaves him vulnerable to frustration, in reaction to which he may well give up, lose interest or develop patterns for pleasing the teacher at the expense of his own personal involvement. As a case in point, consider the teacher with a master’s degree in art education who took her children to see some Eskimo soap stone sculpture. She then gave them soap and tools and suggested that they make a soap sculpture. By suggesting a sculpture she provided the children with a goal they were unlikely to be able to reach to their own satisfaction, particularly as they had been shown the work of skilled Eskimo artists first. Her procedure also suggested a false connection by implying a relationship between soap stone and soap. Perhaps the children should have simply been given soap, tools and water and allowed to explore the relationships, experiencing the pleasure and excitement of discovery and self-learning. Most of the fun of carving in soap is watching it change shape and disintegrate in water.

### **final comment**

If children are to acquire self reliance and confidence in their own ability to master new media and adapt them to their own

purposes, educational programs will need to provide structures in which they have an opportunity to develop this ability.

There are excellent educational programs available today which are based on a discovery approach to learning, but these are usually directed towards helping children discover for themselves that which their teacher already knows. Children are seldom given the time and opportunity to inquire beyond this point, to use what they have learned as a basis to experiment for themselves, to pursue non-verbal, non-abstract goals of their own, and to learn to explore and affect their environment with thoughtfulness, artistry and competence. Programs that are based on a broad concept of the design process may provide a framework within which children can experience and develop these abilities.

## notes

1. Grant R. Gifford, "Creativity: Its Identification and Development," *Curriculum Bulletin*, Vol. XX, No. 244 (May 1964). Published by the School of Education, University of Oregon.
2. Constance Perin, *With Man in Mind: An Interdisciplinary Prospectus for Environmental Design*, Cambridge, Mass: MIT Press, 1970.
3. Richard Jones, *Fantasy and Feeling in Education*, New York: Harper-Colophon Books, 1968, p. 77.
4. Rich E. Hartley, Lawrence K. Frank and Robert M. Goldenson, *Understanding Children's Play*, New York: Columbia University Press, 1952.