

# FINE AND INDUSTRIAL ARTS IN ELEMENTARY SCHOOLS

BY

WALTER SARGENT

PROFESSOR OF ÆSTHETIC AND INDUSTRIAL EDUCATION  
THE SCHOOL OF EDUCATION, THE UNIVERSITY OF CHICAGO

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## PREFACE

During the past few years the amount of new subject matter relating to the fine and industrial arts in elementary schools has rapidly increased. The organization of this material into a form involving definite progression and reasonable standards of attainment at various stages has not wholly kept pace with its introduction.

The considerations here presented regarding a scheme for such organization have taken shape in the course of numerous conferences with those interested in the subject, and as a result of investigations which were suggested by these discussions.

I wish to make acknowledgment of my immediate indebtedness in this endeavor to Professor Charles Hubbard Judd of The University of Chicago, who urged the importance of some attempt to present a survey of the subject.

I am under obligation also to Professor Frank M. Leavitt of The University of Chicago, Mr. James Hall, formerly of the Ethical Culture School of New York City, Mr. Charles F. Whitney of the Normal School of Salem, Massachusetts, Mr. Fred H. Daniels of Newton, Massachusetts, and Mr. John C. Brodhead of Boston, for valuable suggestions; and to Miss Helen E. Cleaves, Miss Lucy D. Taylor, and Miss Amy Rachel Whittier for their help in carrying on observations for two years in the public schools of Boston.

I also take this occasion to recognize a debt of long standing to Mr. Henry Turner Bailey, editor of the *School Arts Book*, who first directed my attention to the educational importance of the arts.

W. S.

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# FINE AND INDUSTRIAL ARTS IN ELEMENTARY SCHOOLS

## CHAPTER I

### EDUCATIONAL AND PRACTICAL VALUES OF THE FINE AND INDUSTRIAL ARTS

Since 1870 drawing, constructive work, and design as common-school studies have been subjects of general discussion. The Centennial Exposition in Philadelphia in 1876 exerted a strong influence in favor of public education in the industrial and fine arts. The educational exhibitions were a revelation to the American people of the possibilities along these lines, and of their own shortcomings. Since then drawing, constructive work, and design have received steadily increasing recognition in elementary education so far as provision for instruction and equipment has been concerned.

Until recently, however, these subjects have been left largely in the hands of specialists. Boards of education, superintendents, and principals have often hesitated to make suggestions because they felt that they had not received the sort of training which would fit them to judge methods and results in these subjects. This feeling has been reënforced by the influence of the tradition that even

ordinary ability in the arts comes more as the result of intuitive appreciation than of well-directed effort.

The present wide acceptance of the manual arts as an important part of general education is rapidly removing them from the class of special subjects, and both educators and the general public are now taking an active interest in them. The educator recognizes that the manual arts constitute a unique type of analysis of the objective world. Each science deals with material from a particular standpoint, and each different kind of analysis adds greater significance and wider range to experience. The contribution which the manual arts make toward a more comprehensive basis for mental activity is to a great degree inaccessible by other methods of approach. He finds in the manual arts a line of activity the results of which are concrete and furnish a visible record of good or poor work, which the child interprets into rational terms of cause and effect more easily than is possible in the case of subjects which deal mainly with language. He sees in them an opportunity for obtaining experience with concrete material and with some of the processes by which it is shaped to human needs. He uses the arts as a method of developing and mastering certain ideas by working them out in visible products, so that materials become a means of expressing and of stimulating thought. He finds also that these arts sometimes furnish a point of contact with the interests of many children who apparently are not reached by more formal studies, and that these interests when once awakened are likely to extend to other lines of school work.

The general public more frequently expresses its convictions in terms of the advantages resulting in later life from the training in manual arts which was received in school,

or the disadvantages experienced from the lack of such training. The attainments commonly described as most useful and desirable by these people who view the subject from the standpoint of industrial and professional occupations may be generalized as follows:

Ability to sketch with pencil or brush so as to show how an object appears or how it is constructed, or to illustrate one's ideas or record one's observations.

Skill in the use of common tools and materials, and ability to plan and work out problems involving ordinary constructive processes—such knowledge and ability as every householder needs.

An appreciation of what is in good taste aesthetically, especially as regards the things which constitute one's immediate environment, and sufficient knowledge of such matters to justify one's taste.

Some acquaintance with excellent examples of art in architecture, painting, sculpture, and the crafts, and a discriminating capacity for enjoyment of beauty of form and color in nature and art.

These advantages thus stated by people outside the schools, in terms of definite attainment which results in increased efficiency and enjoyment, do not conflict with the idea of the educator. If accepted, these standards constitute a basis for estimating the success of manual arts in school courses. When children leave the high school their abilities in this field may be measured about as definitely as in any other.

The purpose of this book is to present some considerations on the following questions, which arise from the present situation:

What are the distinctive functions of the various subjects taught under the head of manual arts in elementary

education? How shall instruction be organized so that progress in attainment shall be evident from year to year? What are reasonable standards of attainment at any given stage?

The general statements that learning to draw is learning to see, that drawing is a valuable language, that constructive work produces accuracy and efficiency in dealing with raw materials, that design develops taste and awakens appreciation of beauty, are not now considered as final or as sufficiently definite to justify the community in leaving the matter wholly with the specialist. Further questions arise, such as: How does the seeing which results from drawing differ from that which exists where drawing is not taught? Are children who complete the elementary-school courses able to use this language of drawing freely as a common, convenient means of expression? Does constructive work as taught produce accuracy, efficiency, the pleasure of intelligent mastery of material, and an appreciation of things in terms of the skill and effort required to produce them? Does it arouse industrial interests and a desire to be of service in the world? What definite signs of better taste are evident in children who complete an elementary-school course which includes design, when compared with children who have had no training in that line? Are there objects of fine art which awaken more enjoyment, and phases of beauty in nature which give more pleasure on account of the instruction which has been given? What steps have led to this appreciation? There is need of detailed testing of methods and examination of results in terms of such questions as these.

In elementary schools only rudiments of the arts can be taught, such as the beginnings of free-hand drawing; simple

forms of constructive work and problems in design, especially as related to common things; and an awakening of some response to beauty in nature and art. Work in these lines, however, has proved to be of genuine value, even when instruction ends in the elementary schools. It deals with factors which have a close, permanent relationship to the life and work of people at large, and presents a type of training which the child has a right to expect from the community.

The various phases of manual expression are not marked off by sharply defined limits. It is impossible to construct an object well without exercising some judgment in design, or to design an object satisfactorily without some knowledge of construction and some ability in representation. The school activities continually call for simultaneous work along all three of these lines. They differ sufficiently, however, to allow of separate discussion. The following paragraphs consider more in detail the values attributed by both educators and the general public to these three lines of study in the public school.

*Representation.* Drawing is a language, a mode of reproducing ideas, and as such is a means of forming and developing these ideas. A child who draws does not set forth ideas already perfectly formed, but perfects them in part by the very act of setting them forth. Drawing thus becomes a tool with which to think.

Little children draw almost wholly from imagination, and find in drawing a means of exercising their mental imagery by putting it into some sort of visible form. This process appears to stimulate mental activity, and at first produces a degree of satisfaction, however crude the results may be, because the child recognizes his ideas in the drawings, although the marks may be unintelligible to others.



Later comes a desire that drawing shall be more than a motor outlet for imagination, and that the result shall represent the idea well enough not only to recall the thought to the one who made it, but also to express that thought intelligibly to others. Thus begins an appreciation of the importance of art as a means of social communication. This leads to a more careful contemplation of objects for the sake of obtaining data for more satisfactory representation, and a corresponding increase in knowledge of form and in trustworthiness of the testimony of the senses is developed.

Children trained to express themselves by drawing learn to analyze and to interpret their visual impressions. Drawing from objects requires a selection of the characteristic features. After the early period of satisfaction with crude symbols has passed, and children reach the stage when they desire to represent appearances truthfully, they must learn to recognize, among the bewildering complexity of details which nature presents, those which are significant — which, if reproduced, will represent the object. Hand, eyes, and mind are busy trying to interpret what is seen into terms of lines or shapes. Drawing thus develops a specific kind of analysis which is impossible when the terms employed are the more general and less objective verbal descriptions.

Drawing partakes more of the nature of a convention than is generally supposed. An oriental or an occidental draws each in the way he regards as best, yet the results differ remarkably. Each is expressing himself in his own graphic dialect. For example, western art makes general use of effects of illumination, shade, and shadow as prominent pictorial features, while in oriental pictures such effects are largely ignored. The objects depicted seldom cast shades or shadows, and variations of light and dark are

usually due to actual differences in local color. In these pictures, however, elements appear, the beauty and effectiveness of which many western artists never appreciated till they studied oriental art. The appreciation of another people's method of drawing is akin to an appreciation of another language, in the revelations it gives of different ways of seeing and thinking.

Drawing, as it exists at present, is the result of an evolution. Its vocabulary has been added to by each generation, and embodies the accumulated results of human observations. One imagines that he is expressing himself in terms suggested directly by the object, but this is only partly true. Drawing an object means translating one's perceptions into terms which have been evolved by the race, and which demand careful selection. It means organizing one's sensations so as to determine what produces the impression, and the modes in which that impression can be interpreted. To draw an object requires a mental activity comparable to that which occurs when a thought is translated from one language into another.

In addition to these general educational values, elementary representation is of direct industrial, scientific, and aesthetic importance.

To the man engaged in constructive work, drawing offers a means of endless experimentation. Workers in metal or wood, when discussing a mechanical or constructive problem, often can present its different possibilities and define the results almost as well by the use of the pencil as by manipulating the actual material. Constructive sketching is also a great stimulus to invention. The more finished working drawings afford a means of recording all necessary data regarding form and construction.

A manufacturer with unusually wide experience thus refers to the value of ability to sketch and draw :

I wish to emphasize the importance of industrial drawing for the mass of trade workers in those lines of manufacturing where the artistic or æsthetic sense is not supposed to hold a prominent place. For example, in the line of machine building the art of drawing has a very important relation to our industrial future. To this particular class of mechanics drawing has a broad field of usefulness: first, because it is a valuable means of expression, since the mechanic who is able to express himself by a rapidly made drawing is inspired thereby to more and better thought; second, because it opens up for him especially a broad field for experimentation and choice.

When by a sketch the manufacturer or mechanic can place before himself and others many ways of doing a thing, he at once makes comparisons, and immediately chooses what he deems the best, the fittest, or the most beautiful. He hits the mark after such a comparison, because with his sketches he has tried many schemes and compared them.

Experimentation, comparison, and choice mark the way of advancement. But life is too short to try many experiments, unless the methods of trying them are very simple. To build things of wood and stone and metal in order to test them and to prove which one is best and fittest requires too much waste of time and material. But the realm of experimentation that is possible with a pencil is wonderful and fascinating; it is almost as unlimited as thought itself.

I have asked myself from whence comes this fascination as we find it in the shops; and I think it is because through the art of drawing, by delineating and by designing, the mechanic himself becomes the creator of things. He not only learns to see clearly things emanating from others, but, behold, he finds he can express his own ideas to himself and to others, and above all he recognizes that they are his own evolution.

For mechanics of all grades and ranks the habit of sketching and drawing becomes a great developing force. For a mechanic drawing becomes the avenue out of himself into the universe. He is not only learning about other people and other things, as we do in the study

of history and geography, but he is revealing himself to himself and to others; and the things revealed are new — new to him and new to the world. This to him is the inspiring quality of his work.<sup>1</sup>

In scientific studies, drawing focuses attention upon, and quickens observation of, facts of forms and structure, rendering the senses more accurate in their testimony and furnishing a means of making definite records.

Representation is also the language of the fine arts of painting and sculpture. The regular work in drawing in elementary schools, involving, as it does, continued use of lines, light and dark, and of color, is giving children constant practice in expressing their ideas and observations by means of the same vocabulary which the artist himself employs. These attempts to use, even though crudely, the terms by which art is expressed are necessary to that kind of artistic appreciation which yields the fullest pleasure. The relation of drawing to art resembles that of language to literature.

Instructors in drawing should regard the elementary phases of the subject as a science and not as something acquired by intuition. They must choose between a course planned for the few in every school who have what is commonly called "talent," and a course planned for the majority of the children and within easy reach of those of no special ability. While any public-school system should take account of special talent and encourage and conserve it, yet in the elementary grades such work should be planned as will justify itself on general grounds and be valuable for all, whatever their future occupations are to be. The work outlined should be such as can be taught in large

<sup>1</sup> From an address by Mr. Milton P. Higgins, president of the Norton Emery Wheel Co., Worcester, Massachusetts, printed in the sixty-eighth *Annual Report of the Massachusetts State Board of Education*, 1904.

part by the regular grade teacher and be well done by as large a proportion of the children as can accomplish the work given in other subjects.

In order to carry out such a plan it is necessary to teach drawing in the most direct and simple way possible, testing methods by the resulting increase in ability to draw on the part of the majority of the children. A lack of such improvement in the many should be interpreted as a fault of the method rather than of the children. Results have already shown that the majority of children can learn to draw sufficiently well for purposes of ordinary practical expression with pencil or brush, and can be led to appreciate what is in good taste, as readily and generally as they can progress in other studies of the school curriculum. Special talent is a factor to be reckoned with in elementary drawing on the same basis as in elementary language or mathematics.

*Construction.* Constructive work provides an objective, permanent type of expression which appears to command the keen interest of all children. It brings experience in shaping raw material till that material embodies the worker's ideas in concrete form. The worker is thus brought into experimental contact with the great range of constructive activities which constitute a world never fully opened up by words. His own experience is illuminated by a sort of appreciation otherwise inaccessible. All this results in building up a type of thinking and planning which should accompany other forms of education and make its contribution before habits of thinking and planning have become fixed along more abstract lines.

Constructive work gives practical familiarity with common tools, processes, and materials, and develops a comprehension of problems of ordinary construction which every

one should possess. It brings the invigoration of dealing with the unvarying, impartial laws of matter, and of being compelled to face the obvious fitness or unfitness of visible results. It awakens pleasure in shaping material to a pre-determined form by patience, foresight, and skill. It brings a healthy realization of the gap which exists between an idea and its finished embodiment in concrete form, and of the persistence necessary when one deals with the slowly yielding conditions of stubborn material. This realization develops a seriousness in undertaking problems, because of the knowledge gained by experience as to the amount of time and effort involved in carrying them to completion, but it is accompanied by the pleasure of a consciousness of skill and of increasing mastery over raw material.

School authorities sometimes discuss the question as to whether any time in the burdened school program can be spared for occupations involving muscular activity, and presume to settle the matter by official action. The nature of children has already settled that question in the affirmative. Motor activity will be an important part of any school program. Probably the only jurisdiction which the authorities actually exercise in the matter is in deciding whether these activities shall hinder or help school work; whether they shall appear as mischief-making or as manual arts.

Constructive work is not only an essential element in general education, valuable alike to the scholar and the artisan; it is also a factor in awakening vocational interests and promoting vocational efficiency. The fact that a large proportion of the school population, variously estimated from one half to two thirds, drops out during or at the end of the elementary-school course to go to work, should be considered in its full significance by educators. These

children never enter a high school. They are too young to go into skilled industries. A few rise through any circumstances, but the majority drift from one to another unskilled occupation, taking whatever pays best. They spend two important years in employments which present no industrial interest and offer no vocational outlook. Such work is usually monotonous drudgery, which develops an unfortunate attitude of mind toward work and compels the child to seek all his pleasure outside of his occupation.

It has been shown that certain kinds of industrial education can come into elementary schools without interfering with the quality of the academic work, and that such education serves to keep children in school and to awaken occupational interests which serve as a reënforcement of general educational interests.

Certain dangers attending the introduction of industrial education into elementary schools readily suggest themselves, but they can scarcely exceed the dangers arising from a lack of any suitable provision for properly satisfying the desire which manifests itself at about the sixth year of school, namely to come into touch with the activities of the world and to join with others in making a contribution to the general welfare. Schools should be equipped to offer such training as will promote the ultimate interests of the children, and, on the other hand, to combat effectively any attempt to exploit the children commercially by fitting them in school to perform particular, unskilled processes to be immediately utilized in local industries.

From an educational standpoint the value of a vocational interest is not primarily economic, but relates to the fact that when such an interest is awakened it is likely soon to become dominant and form a center around which other

interests cluster. A dominating interest tends to collect and organize varying and many-sided interests. The different studies of the school curriculum offer a large body

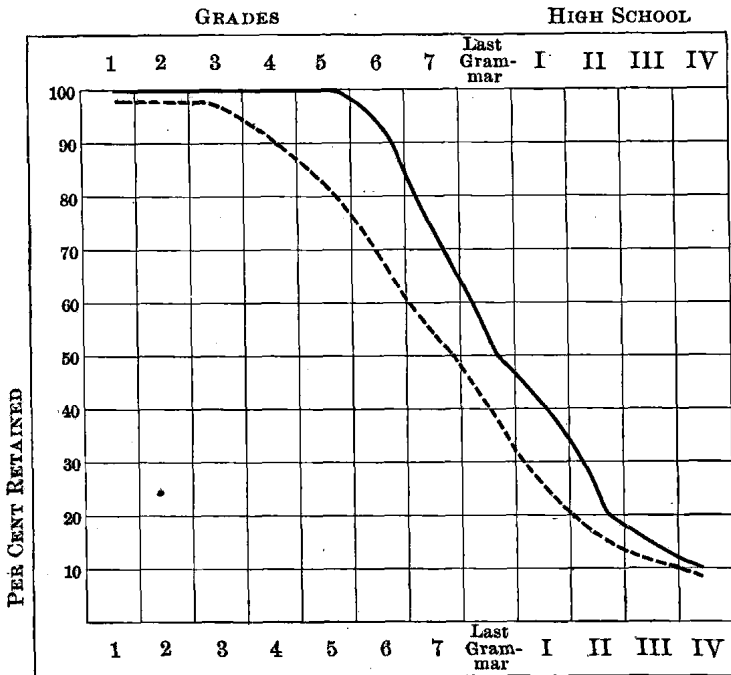


FIG. 1. Diagram showing grades at which children leave school. Results presented by Dr. Thorndike are indicated by dotted line; those by Dr. Ayers, by solid line

From Dr. Leonard P. Ayers's "Laggards in Our Schools," p. 71

of information and many divergent interests. These are important to education but are not its end. The ultimate purpose of education is the development of an individual whose mental interests, although varied, are well organized. The chief factor in mental organization is a strong, central



selective interest which brings scattered things into place. The occupational interest appears to be the natural center toward which others readily converge.

*Design.* The study of design in elementary schools furnishes a means of exercising and thus developing good taste in connection with the things which make up the environment of everyday life, and of awakening appreciation of beauty in nature and in art. Good taste implies more than information regarding what is good. It means that the right sort of things awaken pleasure, and that a desire is aroused which demands excellence for its satisfaction. The power to discern between the merely pretty, with attractiveness which is superficial and transitory, and that which is permanently and universally beautiful, gives capacity for an enjoyment the possibilities of which are unlimited.

Adequate appreciation of beauty seldom comes without definite training. It depends largely upon established habits of seeing. As one finds the objective world assuming a certain order pleasing to his intellect after he knows the scientific categories and can rearrange facts in terms of them, so he finds that after he knows the best types of artistic interpretation, which have selected from the mass those elements which are æsthetically pleasing and have portrayed them, he tends to recast his own perceptions in those terms.

The study of design in public schools should contribute directly to an appreciation of the beauty of the landscape and of plant and animal forms, and also of the artistic possibilities of the community in its natural and architectural features and in its local industries.

Unless the problems of design relate to familiar surroundings, pupils are likely to consider the term "artistic" as one which applies only to unusual things; whereas it