

Industrial Arts and the World of Work

TECHNOLOGY—automated machines! Technology—better living! Technology—complicated industrial processes! Technology—reduction of manpower! Technology—taxing pressures! Technology—research!

We live in an era often referred to as the technological age. The term technology seems to possess a thousand meanings and its implications are creative, mobile, dynamic, threatening, perplexing, and revolutionary. Technology and industry continuously influence our way of life. We can no longer think of technology as something that is purely mechanical. From the time of man the hunter, the trader, the builder, the manufacturer, the mass producer, up to the time of man the programmer, we can see the various stages of technological development. Today this term is unique because society has become more aware of the complex integration of men and machines, of ideas, of industrial procedures, of management, and of the necessity to conquer the unknown.

In case not all readers are familiar with modern industrial arts, let us briefly explain this program of general education. Some have been exposed to "shop" or perhaps even the older concepts of "man-

ual training" or "manual arts." The image of building an article or "project" for the project's sake is giving way to the building of men and women for the world of work.

Defining Industrial Arts

Industrial arts is that phase of education which offers individuals an insight into our industrial society through laboratory-classroom experiences. Through industrial arts, the role of industry and technology is unfolded as students study the history and development of industrial organizations, materials, products, processes, and related problems. Industrial arts provides experiences that develop basic skills and knowledge common to many occupations and professions. The study of industry helps students understand that the materials and products, which contribute to the comforts of everyday living, are the result of man's inquiring mind and his ability to solve industrial and technological problems. Actually, industrial arts provides a means by which students can apply in practical

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and meaningful situations the theoretical principles of science, mathematics, and other related subjects.

Industrial arts education is unique in its services to youth. It is the only curricular area devoted to the interpretation of industry and technology which comprise the dominant characteristic of 20th century American culture. The overarching objectives of industrial arts, as described in the U.S. Office of Education Conference report, *Improving Industrial Arts Teaching*, include the following:

1. To develop in each student an insight and understanding of industry and its place in our culture
2. To discover and develop talents of students in the technical fields and applied sciences
3. To develop technical problem-solving skills related to materials and processes
4. To develop in each student a measure of skill in the use of the common tools and machines.

Subject Areas Included

We have indicated that industrial arts provides for a basic understanding of the relationship between man and his industrial environment. It encompasses a study of many areas to include the broad aspects of construction, transportation, communication, manufacturing, and research development. More significantly, these may include subjects such as automotives, ceramics, design, drawing (previously called mechanical drawing), power mechanics, electricity/electronics, graphic arts, leather, lapidary, metalworking, plastics, textiles, and woodworking. Each of the preceding areas may involve a study of several sub-areas; for example, metalworking may include opportunities in foundry, weld-

ing, machining, sheet-metal, wrought iron, and art metal. Industrial arts laboratories provide students with the opportunity to become actively involved in studying, planning, organizing, creating, constructing, experimenting, testing, servicing, and evaluating materials, processes, and products associated with our industrial society.

Appeal of Industrial Arts

A trend in industrial arts education today is the increase in students throughout the country. In the school year 1948-49, the enrollment of students studying industrial arts courses totaled 1,762,262. In 1961-62 school year, the U. S. Office of Education estimated that over 3½ million students were studying industrial arts.

Industrial arts in the elementary grades is used to enrich and support the overall education program. Some school systems utilize industrial arts specialists to assist elementary school teachers in carrying out an activity-type learning program. Studying a community and its activities comes to life as children work with materials and associate themselves with the various occupational opportunities of their immediate surroundings.

Industrial arts is generally a required subject for all boys in junior high school. Students are introduced to various areas of industry, which include a study of natural and synthetic materials, production methods, and the resulting products. Junior high school boys and girls are encouraged to explore, plan, create, understand, and solve industrial and technological problems.

The world of work is experienced by each pupil as a teacher directs the class into a mass-production problem. Students may form a corporation, sell stock in order to obtain materials, determine

and design a product to be manufactured, prepare jigs and fixtures, develop a flow chart representing the assembly line, carry out time and motion studies, continuously try to improve the product through research, etc.

During this time management may even be faced with a threatened strike. This, of course, may mean a wage increase which would affect the cost of the item being produced. If it is not practical to raise the price of the product, it will be necessary to improve production methods to increase output in order that cost may be held constant. As can be seen, there is no limit to the practical learning experiences in the industrial arts classes. And, of course, other methods such as the unit approach and group project are also used effectively in studying about various industries.

Preparing for Change

Senior high schools generally offer industrial arts as an elective. The individual interest of a student, whether it be professional, business, management, or technical, to a great extent determines the content and direction of senior high school industrial arts. The area of research and development offers the college bound student an opportunity to carry out individual research. Industrial arts provides further knowledge and depth of industrial techniques for those who desire to enter a technical school. For students entering the world of work immediately after high school, industrial arts may be the only opportunity they will have to develop a broad understanding of industry and become thoroughly familiar with the basic occupational skills. The basic knowledge derived from industrial arts will facilitate specialized training and perhaps even retraining at

some later date. This factor is extremely important as it is predicted now that a person may change his occupational area seven times during his life.

Industrial arts education is devoted to the interpretation of industry, which is the most dominant characteristic of our society. Industrial arts education helps all kinds of students to prepare for living in an industrial democracy and provides a foundation for specific occupational and educational opportunities. Industrial arts gives basic education for the technician, engineer, scientist, and for the several occupational education programs.

Rather than being confined to the learning of a specific trade or skill which may be obsolete within a few years, today's concept of industrial arts emphasizes transferable skills and knowledge so that boys and girls may become more flexible and versatile in this rapidly changing world. By receiving basic information on the total scope of industry, students understand the necessity to equip themselves for future adjustment to employment changes due to scientific and technological innovations.

Industrial arts educators realize that more and more youth are entering the labor force. They are also aware of the fact that women are playing a significant role in industry since 27 percent of the labor force today is female. It is estimated that this proportion will be 45 percent by 1980. Industrial arts education is concentrating on meeting the needs of all young people. This area must provide motivation for the underachiever and the academically talented, the potential scientist and the pre-engineer, the future consumer and all other students. They must realize that their whole life will be influenced by the wonderful, but complex, world of work.

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