AN ANALYSIS AND COMPARATIVE STUDY OF THE OBJECTIVES OF INDUSTRIAL ARTS AND GENERAL EDUCATION IN ORDER TO DETERMINE THE RELATIONSHIP OF INDUSTRIAL ARTS TO GENERAL EDUCATION

APPROVED:

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ORDER TO DETERMINE THE RELATIONSHIP OF
INDUSTRIAL ARTS TO GENERAL
EDUCATION

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CHAPTER I

INTRODUCTION

Statement of Problem

This study is an analysis and comparative study of the objectives of industrial arts and general education in order to determine the relationship of industrial arts to general education.

In recent years educators all over the United States have been wondering whether or not the courses they are offering contribute to the welfare of the children being taught. The "needs" approach to curriculum building seems to be one of the greatest advancements in the field of education in the past generation. There should be a concrete basis for every course offered in secondary education, and the teachers should know what is expected of them and the courses which they teach. In surveys in the past it has been found that a very small percentage of the teachers could state readily exactly what it was that they were trying to accomplish in their respective subjects.

In regard to the influence education can have upon society, Stratemeyer says:

Organized education is the greatest social 'invention' of all time. Like other great inventions it may be used for evil. It may foster good will,
international understanding, and respect for the individuals, or it may build antagonisms, prevent understanding of others, or subordinate the rights of the people to those of the state. It may help individuals effectively to meet their problems of daily living, or it may dwell exclusively on the abstract that few can profit from it. There is no escaping the fact that education makes of both the individual and society something which they otherwise would not become. It builds as well as expresses a civilization. Developed constructively, it can build a civilization of responsible peoples willing and able to solve life's problems for the well-being of all.¹

Almost every child in the public schools of America will, when he grows older, earn his living. The schools should therefore, deal with every normal child and youth on the theory that when adulthood is reached he must earn his living. Each is to be a producer to the extent that he consumes. It has been said by personnel managers of large, successful concerns that the qualifications they would like in their prospective employees are: (1) a general education, like that given by the high school, if it is broad, is satisfactory, (2) ability to follow instructions, (3) a willingness to work hard and faithfully.²


Purpose of Study

The purpose of the study is to make an analysis of the objectives of industrial arts and general education to determine whether or not these objectives are meeting the needs of youth.

Delimitations

The study will be limited to an analysis and comparative study of the objectives of general education and industrial arts on the secondary school level within the United States.

Definition of Terms

General Education, for the purpose of this study will be defined to mean that type of education that is sufficiently broad and flexible to deal with the needs and interests of every individual in order that he might live and meet the problems of life more easily and efficiently during youth as well as a preparation for adult life.

Industrial Arts, in this study will mean the broad study of the materials, tools, products, occupations of industry, and the problems of life resulting from the industrial nature of society to enable an individual to live more effectively.
Comparative Study, in this study will mean the systematic comparison of the results of the analysis of the objectives of general education and industrial arts.

Objectives, for this study will mean those goals, or standards of attainment set up for a subject or group of subjects in order to judge the progress achieved.

Needs of Youth, when used in this study will mean those knowledges that should be common of all youth in order that he may live more intelligently and effectively as a member of a democratic society.

Analysis, in this study will mean the separation and classification of the objectives of industrial arts and general education in relation to the needs of youth.

Source of Data

The data used in this study were secured from books, pamphlets, bulletins, and professional magazines on the subjects of general education, industrial arts, needs of youth, democracy in education, and education in general.

Treatment of Data

This study is presented in seven chapters. The first chapter gives an introduction to the problem, the statement of the problem, the purpose of the study, the definition of terms, delimitations of the study, source of data, treatment of data, and recent and related studies.
Chapter II is a presentation of the objectives of general education.

Chapter III presents the objectives of industrial arts.

In Chapter IV the needs of youth are determined.

Chapter V is an analysis of the objectives of industrial arts and general education according to the needs of youth.

Chapter VI presents a summary and conclusion of the study.

Related Information

Wilber made a study to determine the behavior changes in youth. In the study he states the objectives of industrial arts and then analyzes them in terms of the behavior changes that theoretically should take place. In this study the objectives of industrial arts will be analyzed to determine to what extent they are meeting the needs of youth.\(^3\)

Geraldine Voss made a study of the needs of youth to determine whether the curriculums of the present schools are organized to meet these needs. One conclusion of her study was that the needs of youth can be grouped under four areas of living:

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\(^3\)Gordon O. Wilber, *Industrial Arts in General Education*. 
a. Living in the home.

b. Leisure or recreational living.

c. Making a living (vocation).

d. Living in the community.

Voss' study dealt entirely with the needs of youth and no specific subject was chosen for analysis to determine whether or not it was fulfilling the needs of youth. In this study the objectives of industrial arts and general education will be analyzed in an attempt to determine whether industrial arts and general education are meeting the needs of youth.

Charles P. Richardson lists the objectives of industrial arts and then attempts to analyze, or re-interpret these objectives to meet what he thinks the people in industrial arts should be attempting to do in their courses. Richardson uses the objectives of industrial arts alone, whereas, in this study the needs of youth are used as a measuring stick in the analysis of the objectives of industrial arts.

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D. C. Doane made a study of what the students in the high schools thought they should be taught. He found that the students showed a preference for such needs as: vocational choice and guidance; getting along with people; health; sex; finances; plans of marriage and family; leisure time and recreation; morals; religion; history; government; and current problems. He found that the educational focal point should be away from adult problems and subject matter and towards a focus on youth itself, as an individual and as a member of society, his problems of adjustment of his vocational future, to his fellow youth, and to his emerging adult status. The author indicated a need for considerable changes in the content of the prevailing secondary curriculum if the commonly accepted aims of education are to be accomplished.

6Donald C. Doane, Needs of Youth, pp. 21-22.
CHAPTER II

GENERAL EDUCATION

Development of General Education in the United States

In the United States as early as 1749, Benjamin Franklin proposed that "useful things" should be taught in the academies. With the academies, certain things came about which have had far-reaching effect upon American education. The Franklin Academy opened the way for education for girls in the schools and gave the boys and girls not intending to go to college an education that was usable in the affairs of daily life. In so doing, new subjects were introduced along with the new methods of teaching, and it acquainted the population in general with the idea of secondary education.¹

In Boston, in 1824, the first high school was opened, and with the coming of the high school a greater diversity in the subjects being taught became apparent.² More children who did not intend to go on to college were able to attend these schools, therefore, calling for subject

¹A. A. Douglass, Secondary Education, p. 15.
²Ibid., p. 24.
matter different from that of the boys preparing to attend higher institutions of learning. As the population grew more dense and the modes of life became more complex, a greater responsibility was placed upon the schools.

In recent years the schools have tried several different methods and ideas to provide a general education for the students, but these attempts, as a whole, have been unsuccessful. The present, and by far the most logical, trend is that of life adjustment education. As the name implies, life adjustment education deals with the interests and needs of all youth in order to make them more worthy members of society. With nearly 8,000,000 pupils in the public high schools today the needs and interests of these students will be widely varied. It is essential then, that the schools present an enriched and varied program of education.

Definitions of General Education

What is general education? According to the Harvard Committee on the Objectives of General Education, the term "general education" is used to indicate "that part of a student's whole education which looks first of all to his life as a responsible human being and citizen."² The

²Chris A. De Young, Introduction to American Public Education, p. 196.

committee further states that, "general education is distinguished from special education, not by subject matter, but in terms of method and outlook, no matter what the field."  

Johnson defines general education in this manner:

In the past, general education has at times been used to refer to the common body of experience represented by the three R's in the elementary school; at other times, general education has described a required body of study in any given high school. More recently, however, the term has been used to characterize a movement based upon the recognition that colleges are obligated to provide instruction planned in terms of the life needs of students and that these life needs include more than academic scholarship and preparation for the professions. . . .

What is general education? General education is general in at least three respects:

First, general education is intended for everyone—not merely for the select few who become scholars or who enter the professions. No longer will preparation for college entrance dominate the curriculum of the high school which is committed to the objectives of general education. The program of such a school will be planned to meet the varied needs of all young people of the community which it serves.

Second, general education is concerned with the total personality—not merely with the intellect, but with emotions, habits, attitudes. General education regards the student as a single unified being rather than a compartment of knowledge, one of feelings and another of beliefs. This means that specific general education programs must be defined in terms of what the learner is, or does, rather than in terms of course content or a body of knowledge.

Third, general education is concerned primarily with the individual's non-specialized activities. It consists of preparation for efficient living, no matter what one's vocation. This does not at all imply a lack of concern for vocational training. Since two of

^Ibid., p. 56.
the responsibilities of every person are a contribution to society and earning of his own living, general education should include the choosing of a vocation in relation to both one's own aptitudes and interests and to the needs of society.  

However, Wilber in summing up the characteristics of general education, says:

... stripped of verbiage and special applications, the various statements may be summed up as implying three basic purposes: (1) to transmit a way of life, (2) to improve and reconstruct that way of life, and (3) to meet the needs of individuals.

In the foregoing paragraphs the opinions of various authors and committees concerning the question of what should be considered a general education have been presented. They appear to have almost the same conception of general education because most of them agree on such points as: (1) it should meet the needs of youth, (2) it should be for everyone, (3) it should be concerned with education for an occupation, (4) it should educate the child to be a good citizen and individual of society, and (5) it should teach the child to meet real life situations successfully.

Objectives of General Education

Because all authors and committees do not hold the same opinion as to what should be the objectives of education,

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7 Gordon O. Wilber, *Industrial Arts in General Education*, p. 3.
attention is here centered upon some of the more popular objectives of general education.

As early as 1861, Herbert Spencer revealed his classification of human activities as a basis for grouping educational objectives. The five major areas of human conduct were classified by Spencer as follows:

1. Self-preservation.
2. Securing the necessities of life.
3. Rearing and discipline of offspring.
4. Maintenance of proper social and political relations.
5. Activities which make the leisure part of life, devoted to the gratification of the tastes and feelings.

In 1890 the Committee of Ten outlined the aims and principles for education and which has been the basis for the formation of educational programs up until the present time. These principles later became known as the Seven Cardinal Principles of Education. They are as follows:

1. Worthy home membership.
2. Command of fundamental processes.
3. Health.
4. Vocation.
5. Citizenship.
6. Worthy use of leisure time.
7. Ethical character.

\[8\] Herbert Spencer, *Education*, p. 32.

The North Central Association of Colleges and Secondary Schools in 1933 set up the following objectives of education:

1. To maintain health and physical fitness.
2. Exploration of vocations and vocational efficiency.
3. Successful social relationships: civic, domestic, community.
4. Right use of leisure.10

Harl Douglass formulated these objectives of education for the American Youth Commission in 1937:

1. Citizenship in local, national, world-wide civic, recreational, economic, and religious groups.
2. Home membership—domestic compatibility, rearing of children, purchasing and consumption of goods and services.
3. Enjoyment of life—recreational and other leisure occupations, appreciations and enjoyment of environment in general.
4. Physical and mental health—sound physical and mental conditions and healthy personality.
5. Vocational effectiveness—ability to contribute to the economic assets of society and to market contributions.
6. Continued learning, interests and abilities to read, to think, and to study most effectively.11

In 1937, the Joint Committee on Curriculum working under the National Educational Association, states the purpose or objectives of education in the form of areas of living, as used in the core curriculum, to be:

1. Living in the home includes rearing children, the maintenance and repair of the home, the management of the home, and family relations.

2. Leisure includes physical exercise, outdoor activities, handicrafts, the arts and literature, and the dance and the theater.

3. Citizenship includes the relation of the individual to government, to civic enterprises, and to world affairs, sanitation, social welfare, social security, and the like.

4. Organized social life includes the church, social organizations, cultural groups, fraternal organizations, study clubs, and professional groups.

5. Consumption includes the selection, purchase, and care of food, clothing, shelter, fuel, and household furnishings, household accounting, insurance, and certain social phases of consumption, such as housing.

6. Production includes earning a living, choosing vocations, the organizations of business, banking, agriculture, organized labor, distribution of income, and corporate business.

7. Communication includes the motion picture, the radio, the press, the postal system, and the telephone.

8. Transportation includes all of the means in which passengers and goods are transported from place to place. 12

In 1938 the Educational Policies Commission submitted the most recent and most appealing objectives for secondary education. The commission identified four aspects of educational purpose, centering around (1) the person himself, (2) his relationship to others in home and community, (3) the creation and use of material wealth, and (4) socio-civic activities. The first area calls for a description of the educated member of the family and community group; the

third, of the educated producer or consumer; and the
fourth, of the educated citizen. The four great groups
of objectives are stated as those of:

1. Self-realization.
2. Human relationship.
3. Economic efficiency.
4. Civic responsibilities.13

The objectives of self-realization can be sub-divided
in the following ways:

   The Inquiring Mind.---The educated person has
      an appetite for learning.
      Speech.---The educated person can speak the mother
tongue clearly.
      Reading.---The educated person reads the mother
tongue efficiently.
      Writing.---The educated person writes the mother
tongue effectively.
      Number.---The educated person solves his problems
            of counting and calculating.
      Sight and Hearing.---The educated person is
            skilled in listening and observing.
   Health Knowledge.---The educated person understands
      the basic facts concerning health and disease.
      Health Habits.---The educated person protects his
            own health and that of his dependents.
   Public Health.---The educated person works to
      improve the health of the community.
   Recreation.---The educated person is participant
      and spectator in many sports and other pastimes.
   Intellectual Interests.---The educated person has
      mental resources for the use of leisure.
   Esthetic Interests.---The educated person
      appreciates beauty.
   Character.---The educated person gives responsible
      direction to his own life.14

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13 Educational Policies Commission, The Purpose of
   Education in American Democracy, p. 47.

14 Ibid., p. 50.
The objective of human relationships can be subdivided in the following ways:

Respect for Humanity.--The educated person puts human relationships first.
Friendships.--The educated person enjoys a rich, sincere, and varied social life.
Cooperation.--The educated person can work and play with others.
Courtesy.--The educated person observes the amenities of social behavior.
Appreciation of the Home.--The educated person appreciates the family as a social institution.
Conservation of the Home.--The educated person conserves family ideals.
Homemaking.--The educated person is skilled in homemaking.

Democracy in the Home.--The educated person maintains democratic family relationships.  

The objective of economic efficiency can be further divided as follows:

Work.--The educated producer knows the satisfaction of good workmanship.
Occupational Information.--The educated producer understands the requirements and opportunities for various jobs.
Occupational Choice.--The educated producer has selected his occupation.
Occupational Efficiency.--The educated producer succeeds in his chosen vocation.
Occupational Adjustment.--The educated producer maintains and improves his efficiency.
Occupational Appreciation.--The educated producer appreciates the social value of his work.
Personal Economics.--The educated consumer plans the economics of his own life.
Consumer Judgement.--The educated consumer develops standards for guiding his expenditures.
Efficiency in Buying.--The educated consumer is an informed and skillful buyer.
Consumer Protection.--The educated consumer takes appropriate measure to safeguard his interests.

\[15\text{Ibid., p. 72.}\]  \[16\text{Ibid., p. 90.}\]
The objectives of civic responsibility can be subdivided in the following ways:

Social Justice.—The educated citizen is sensitive to the disparities of human circumstance.
Social Activity.—The educated citizen acts to correct unsatisfactory conditions.
Social Understanding.—The educated citizen seeks to understand social structures and social processes.
Critical Judgement.—The educated citizen has defenses against propaganda.
Tolerance.—The educated citizen respects honest differences of opinion.
Conservation.—The educated citizen has a regard for the nation's resources.
Social Applications of Science.—The educated citizen measures scientific advance by its contribution to the general welfare.
World Citizenship.—The educated citizen is a cooperating member of the world community.
Law Observance.—The educated citizen respects the law.
Economic Literacy.—The educated citizen is economically literate.

Political Citizenship.—The educated citizen accepts his civic duties.

Devotion to Democracy.—The educated citizen acts upon an unswerving loyalty to democratic ideals. 17

The opinions of several authors and special committees in the field of general education have been presented in order to secure a more accurate conception of the definition and objectives of general education.

General education in this study does not mean the type of education program that offers a variety of required courses. Neither does it mean the type of program that is non-vocational and non-specialized in nature. As used in this study, general education is that type of educational

17Ibid., p. 108.
program that is concerned with the present and future life of an individual as a useful citizen in a democratic society. To provide such an education, it must be sufficiently broad and flexible to deal with the needs and interests of every individual in order that he might live and meet the problems of life more easily and efficiently during youth as well as preparation for adult life.

The following objectives of general education have been set up to comply with the requirements set forth in the above explanation of general education:

1. Physical and mental health.
2. Use of leisure time.
3. Vocational training.
4. Social relationships.
5. Consumer knowledge.
6. Civic responsibilities.

Physical and mental health as an objective of general education should include studies of the basic facts and measures of prevention of the most deadly diseases such as cancer, polio, heart disease, and venereal disease. Exercise and games requiring physical co-ordination and exertion should also be stressed.

Use of leisure time as an objective of general education should provide for the recreational and vocational activities such as hobbies, group games, and other ways of spending leisure time in a worthwhile pursuit.
Vocational training as an objective of general education should be provided for through information and guidance concerning certain occupations. It should provide work experience, or on the job training if possible. General education should provide courses where students may explore to find the job suited to the individual.

It is necessary for everyone to know how to cooperate and get along with his family, his friends in the community, and in the organized social groups of which he may be a member.

Consumer knowledge as an objective of general education provides information concerning the ability to buy and maintain the objects and individual uses. The student should be taught when, where, and how to buy to get the greatest value. He should also know about insurance, investments, and banking procedures.

Every citizen has certain civic responsibilities that he should fulfill. He should know the laws and regulations governing the community in which he lives. He should know how his city government functions, where his tax dollar is spent, and about the city officials whom he helps to elect. He should always be looking for ways of improving living conditions in his community. Should he see any wrongs being done, the student should be taught that it is his duty to see that they are righted.
CHAPTER III

INDUSTRIAL ARTS

Development of Industrial Arts

Some type of manual training has gone on in the world since the beginning of man; however, the Hebrews were the first people to recognize the importance of vocational training. It was the duty of every father to teach his son a trade. "Whosoever does not teach his son a handicraft teaches him to be a thief."¹ Recall that Jesus was a carpenter and Saul of Tarsus was a tentmaker. Domestic training was raised to a new level. The Jews developed a much more beautiful home life than that of other countries.

John Locke proposed a working school for poor children. The object of this school was to accustom the children to work and relieve the mothers of their care. He also said that each boy should learn a trade such as gardening, carpentry, work in iron, brass, or silver.²

Rousseau aimed at the preservation of the natures and virtues of the individual. Concerning the value of handwork, Rousseau says:

¹Elmer H. Wilds, The Foundation of Modern Education, p. 70.
the child will learn more by one hour of manual labor than he would retain from a whole day's verbal instruction. Of the various occupations which serve to furnish subsistence to mankind those which approach nearest to a state of nature are the manual arts. The great secret of education is to make the exercise of the body and that of the mind serve always to relieve each other.3

It has been said that manual training originated from German methods of teaching which in general would be true, yet the manual training movement in Germany began in Denmark and Sweden. Salomon received the fundamental idea of his educational system from Cygnus and Cygnus obtained his from the writings of Froebel, and Froebel was a student of Pestalozzi. By this process manual training can be traced back to Central Europe except for the one vital spark, adequate analysis of process.4

Benjamin Franklin established the first academy in America in Philadelphia in 1749. One of the distinguishing characteristics was its emphasis on practical courses, especially those desired by boys interested in professions other than law and the ministry. In these schools Franklin proposed to teach some of the trades prevailing at that time.5

3C. A. Bennett, History of Manual and Industrial Education up to 1870, p. 80.

4C. A. Bennett, History of Manual and Industrial Education 1870 to 1917, p. 109.

Festalozzi stressed manual instruction in his schools; he was the instigator of the method of teaching known as "learning by doing." He used this method in all of his courses, never spending much time with the contents from books. In his school carpentry, cabinet-making, agriculture, and homemaking were among the things taught in his manual-training program.

Industrial arts as we know it today has gone through a series of evolutionary changes since it was introduced into the United States in the late 1800's. It was first known as "mechanic arts," then as "manual arts," and finally in about 1912, as "industrial arts." Industrial arts was originally placed in schools because of the theory that it trained the hand and eye, a theory that agreed with the prevailing principles of faculty psychology.

In 1868, Victor Della Voss, director of the Imperial Technical School of St. Petersburg, Russia, instituted a formal course in tool instruction. The Russian system of tool instruction was exhibited at the Centennial exposition in Philadelphia in 1876. The system was considered so good

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6 C. A. Bennett, History of Manual and Industrial Education up to 1870, pp. 113-122.

7 Gordon O. Wilber, Industrial Arts in General Education, p. 1.

that as a direct result of the exhibiton in Philadelphia a School of Mechanic Arts was opened in connection with the Massachusetts Institute of Technology in Boston. The principles of the system were adopted by the St. Louis Manual Training School of Washington University. From these schools the movement to establish manual training high schools spread all over the United States. 9 The outstanding fact concerning the system remains that it was the first to use scientific principles in analyzing the mechanic arts and basing courses of instruction on the analyses. 10

Otto Salomon is regarded as the man most responsible for sloyd being introduced into the general education system as a part of general education. There are three outstanding characteristics of the educational sloyd as developed by Salomon: (1) making useful objects, (2) analysis of processes, and (3) educational method. Salomon based his course upon a series of exercises like those used in the Russian system; however, instead of just making exercises, he had them combined to make some sort of useful project. 11

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9C. A. Bennett, History of Manual and Industrial Education 1870 to 1917, p. 42.
10Ibid., p. 47.
11Ibid., p. 65.
Gustaf Larsson, a Swedish sloyd teacher, was hired to establish the first sloyd schools in America. The sloyd system, however, was not too successful in America because it did not fit the American way of life.\(^{12}\)

Manual training was introduced into the schools of the United States by C. M. Woodard and J. D. Runkle. Woodard established manual training in the Washington University of St. Louis after seeing the Russian exhibit at the Philadelphia Centennial Exposition in 1876. Woodard used the same principles as those used by Victor Della Voss in the Russian system. Woodard is to be given much credit for helping to establish manual training in the general education program in the schools of America.\(^{13}\)

J. D. Runkle of the Massachusetts Institute of Technology was another great advocate of manual training. He also saw the great value of the Russian system of tool instruction. Upon his return from the Centennial Exposition, Runkle recommended that instruction shops be established in which all the mechanic arts needed by young engineers should be taught. This recommendation was approved and the new school was named the School of Mechanic Arts.\(^{14}\)

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\(^{13}\) C. A. Bennett, *History of Manual and Industrial Education 1870 to 1917*, p. 322.

\(^{14}\) Ibid., p. 320.
The next distinct movement in the development of manual-training in this country was the Arts and Crafts Stage, a movement meant to bring back the beauty to the common things of life. This was after the machine-age had driven the craftsman and his wares from the market with modern machinery and production methods. Morris and Ruskin, the leaders of this movement, believed that manual training should teach the simple beauty of good proportion and honest construction. As crude as the methods were to fashion manual training along the Arts and Crafts lines, they did produce some good results. The projects were more adaptable to the modern American home, and they did require some originality of thought and planning, some variety in products, and at least some effort at good proportion and design. It made the manual training teachers conscious of the fact that there are such things as good taste, artistic ideals, beauty in simplicity, originality of design, and honest construction.\textsuperscript{15}

The next movement in the development of manual training was the attempt to industrialize and vocationalize the shop work. The movement began with a new conviction, which is now quite general, that shop courses should bear a more intimate and definite relation to the industrial world. It was believed that the school shop should provide

\textsuperscript{15} S. A. Vaughn and A. B. Nays, \textit{Content and Methods of the Industrial Arts}, p. 35.-36.
a fund of information and experience relating to materials, processes, methods of manufacture, opportunities for employment and success of certain fundamental industries. Thus the term industrial arts supplanted manual training. Industrial arts provided the means of pupil participation in, or at least, observation in the phases of real work of the world.16

Industrial Arts as Interpreted in Present Day General Education

Industrial arts has been defined in different ways by various authors. Frederick Bonser of Columbia University was the first man to use the term "industrial arts." His definition of industrial arts is as follows:

Industrial arts as a school subject is the distilled experience of man in his resolution of natural materials to his need for creative comfort to the end that he may richly live his spiritual life.17

He later changed his definition to this, "industrial arts is a study of the changes made by men in the forms of materials to increase their values, and of the problems of life related to these changes."18

16Ibid., pp. 37-38.
18Ibid., p. 1.
In discussing the principles of industrial arts, Struck states that:

Industrial arts is fundamentally a part of the general, all-around development of the individual, as distinguished from vocational education; it helps to make persons intelligent consumers by giving them a limited contact with, and some information about, tools, processes, materials, design, and life problems, but it does not aim directly to impart vocational proficiency. 19

Fales defines industrial arts as "the broad study of the materials, organization, tools, processes, products, jobs, and human problems of industry." 20

Wilber says industrial arts includes "those phases of general education which deal with industry—its organizations, materials, occupations, processes and products—and with the problems resulting from the industrial and technological nature of society." 21

Objectives of Industrial Arts

No hard and fast rule can be made concerning the objectives of industrial arts, or for that matter, any subject, because all situations are not the same, consequently, the teacher must set up his own specific objectives to fit his need. There are, however, certain fundamental objectives.

20 Gordon O. Wilber, op. cit., p. 2.
21 Ibid., p. 2.
that are basic in nearly any industrial arts program; the purpose here is to give the opinions of noted authorities in the field concerning the objectives of industrial arts.

Selvidge, a member of the Manual Arts Conference Committee, referred to the objectives as standards, or ideals which the teacher should strive to attain. These should be selected because of the contribution they will make to one, or more of the objectives. Selvidge clarifies this statement still more when he says:

Objectives are the attitudes, habits, and accomplishments which the pupil is expected to acquire, in some measure, as a result of the experiences provided for him in the field of industrial arts and which, it is believed, will aid in making a happy, useful, and successful citizen.\footnote{Manual Arts Conference, \textit{Industrial Arts in Modern Education}, p. 31.}

The group of objectives that the committee agreed should be the basic objectives of industrial arts are namely:

1. To develop an active interest in industrial life and in methods of production and distribution.
2. To develop the ability to select, care for, and use properly the things he buys and uses.
3. To develop and appreciation of good workmanship and design.
4. To develop an attitude of pride or interest in his ability to do useful things.
5. To develop in each pupil a feeling of self-reliance and confidence in his ability to deal with people and to care for himself in an unusual and unfamiliar situation.
6. To develop that habit of an orderly method of procedure in the performing of any task.
7. To develop the habit of self-discipline which requires one to do a thing when it should be done, whether it is a pleasant task or not.

8. To develop the habit of careful, thoughtful work without loitering or wasting time.

9. To develop an attitude of readiness to assist others when they need help and to join in group undertakings.

10. To develop a thoughtful attitude in the matter of making things easy and pleasant for others.

11. To develop a knowledge and understanding of mechanical drawing, the interpretation of the conventions used in drawings and working diagrams, and the ability to express his ideas by means of drawings.

12. To develop elementary skills in the use of the more common tools and machines, and a knowledge of the methods of procedures, in tasks frequently encountered by the average man, together with a knowledge of the working qualities and characteristics of some of our most used materials.\(^{23}\)

The above objectives are the most widely recognized for a basis in teaching the industrial arts. However, as education is dynamic, so must the objectives of industrial arts be dynamic to meet the need of those concerned.

Richardson, in reinterpreting the objectives of industrial arts for modern education, uses the twelve objectives as outlined by the Manual Arts Conference Committee, to which he adds one more, namely:

To develop the ability to use the mathematics required in the various trades.\(^{24}\)

\(^{23}\)Ibid., pp. 33-34.

\(^{24}\)Charles F. Richardson, "A Reinterpretation of Industrial Arts Objectives," Industrial Arts and Vocational Education, XXXIII (February, 1944), pp. 55-56.
In stating the objectives of industrial arts in general education, Wilber lists eight objectives which are as follows:

1. To explore industry and American industrial civilization in terms of its organization, raw material, processes, and operations, products and occupations.
2. To develop recreational and avocational activities in the area of construction work.
3. To increase an appreciation for good craftsmanship and design, both in the products of modern industry and in the handicrafts from the material cultures of the past.
4. To increase consumers knowledge to the point where students can select, buy, use, and maintain the products of industry intelligently.
5. To provide information about, and insofar as possible, experience in, the basic processes of many industries, in order that students may be more competent to choose a future vocation.
6. To encourage creative expressions in terms of industrial materials.
7. To develop desirable social relationships, such as cooperation, tolerance, leadership and fellowship, and tact.
8. To develop a certain amount of skill in a number of basic industrial processes.\(^\text{*}\)

T. A. Hippka has formulated the following group of objectives for industrial arts:

1. To provide opportunities for the development of fundamental shop skills and appreciations which will serve as a basis for further vocational training and advancement.
2. To acquaint youth with conditions in industry both from the standpoint of the employer and the employee in order that they may appreciate and better understand their problems.
3. To familiarize the students with the products of industry in order that they may be more intelligent consumers.

4. To provide opportunity for purposeful exploration and experimentation, especially in the junior high level in order that the boy may further discover his aptitudes and interests.

5. To develop intelligent fellowship as well as leadership through various shop activities, including the shop personnel organization plan.

6. To promote proper habits of safety and health, particularly as they relate to shop activities and conditions.

7. To articulate industrial arts with mathematics, science, design and other school subjects, especially from the standpoint of application in order that it may be a vital part of the student's general education.

8. To provide opportunities for growth where the learning and the skills required are commensurate with the capacity of the student and where he really experiences the satisfaction that comes from success and the completion of a worthwhile task.

9. To provide opportunities for the development of desirable habits for thinking through learning, analysis, planning, application, and performance in the shop.

10. To help develop well-rounded out individuals capable of using their hands and their heads whether it be in the pursuit of wholesome leisure-time activities or in the more serious business of earning a living.26

J. A. Starrak stated that if the industrial arts are properly taught, the following objectives can be derived:

1. Character building.
2. Industriousness and perseverance.
3. Establishment of permanent interests.
4. Development of ability to think.
5. Handyman abilities.
6. Vocational guidance values.
7. Appreciation of and respect for labor.27


The author also points out that the teacher must be aware of the objectives of the courses they are teaching and they must adopt such methods of teaching as are appropriate to their attainment.

Newkirk and Johnson outline the objectives of industrial arts as being:

1. Develop ability to plan and complete projects, use of a variety of tools and construction materials in a workmanlike manner.

2. Give experience that will increase understanding of modern industry and that will lay the foundation for and help determine vocational interests.

3. Develop the ability to read and make working drawings, charts, and graphs.

4. Develop the ability to recognize quality and design in the products of industry.

5. Develop the ability to maintain and service in a safe and efficient manner the common products of industry.

6. Provide an objective medium for expression in mathematics, science, language, art, and social science.

7. Develop an interest in crafts as a valuable medium for creative expression in leisure time.

8. Give experience that will develop social understanding and the ability to work effectively with others either as a leader, or as a member of the group.²⁸

Struck says that an efficient industrial arts program should have the following objectives:

1. Meet instinctive desires.

2. Provide exploratory and try-out experience.

3. Furnish opportunities of mental and physical development.

4. Develop appreciations.²⁹


²⁹ Theodoric Struck, op. cit., p. 37.
In the foregoing paragraphs the opinions of several authors and committees concerning the definition of the term industrial arts and the objectives of industrial arts have been presented. The term industrial arts as used in this study is the broad study of the materials, tools, products, occupations of industry, and the problems of life resulting from the industrial nature of society to enable an individual to live more effectively.

In order to promote an industrial arts program that would comply with the above definition, the following group of objectives have been selected:

1. To develop an appreciation of and respect for labor, good workmanship, and design.

2. To develop an interest toward industry and in methods of production and distribution.

3. To increase consumer knowledge in order that the students can select, buy, use, and maintain the products of industry intelligently.

4. To provide information concerning the various phases of industrial occupations in order that students may more intelligently choose a future vocation.

5. To promote recreational and avocational activities in the area of industrial arts.

6. To develop a careful, thoughtful procedure in performing any task.

7. To develop a certain amount of skill in the use of a number of the basic tools in the household and in industry.

8. To promote habits of safety and health in relation to shop activities and conditions.

9. To develop desirable social relationships such as cooperation, leadership, fellowship, and tact.
CHAPTER IV

NEEDS OF YOUTH

Life and Educational Needs

Greater emphasis is now placed upon the needs of youth in organizing a curriculum than in any time during the past. The present trend is away from subject-matter and method-centered schools and towards student interest and the understanding of the needs of boys and girls. No curriculum can remain fixed because the needs and interests change as people alter their modes of living.

The lower forms of plant life need water, light, air, and nutrition. As the scale of life is ascended the needs, especially, those of the animal series multiplies. In man they become extremely varied and complex, therefore, to live a human life involves the satisfaction of all sorts of physical, mental, and social needs. Now the basic needs of all of us are physical. We need food, not a mere subsistance diet, but food that is pleasant to the taste as well as nourishing. We need clothing, not only to keep us warm, but to adorn our bodies. We need shelter, a place of warmth, comfort, beauty, privacy. We need fresh air and sunshine. We need the material things necessary to maintain abounding health. 1

Although a person could exist with physical needs alone, he would not be able to carry out the social responsibilities, of modern living, nor would he be able to advance from his present status in life because of his lack of training.

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1 Irving E. Miller, Education For the Needs of Life, p.4.

34
The "needs of youth" approach to curriculum reconstruction and guidance has been lauded as one of the "most promising and forward-looking developments in our schools in the past generation."² Yet while it is a general conclusion that the present school curriculum is charged with meeting the needs of boys and girls in a dynamic society, it is weighted heavily toward the static social life.³

Selecting the Needs of Youth

Needs, as used here, means those things that the student needs to know in order to survive and progress in this modern world. It is apparent that the needs of students in the present society are important in determining the objectives of education. The question then arises as to how the needs of youth shall be determined. One method suggested was that supposed needs be determined by looking at adult society and trying to learn the activities which youths would eventually be called upon to perform. This method has sometimes been called the Scientific Movement in education. This method gave little or no attention to

the nature of the child, as such; to his maturity level; to his interests; or to his abilities and probably is the reason for so many maladjustments in the public school today. 4

Another school of thought was the theory that the felt needs of youth are adequate guides to his developmental requirements. This was the philosophy of Rousseau and later of Dewey in which the child was to do only what he wanted to do or felt he should do. This philosophy led to the child-centered school and the goalless school. 5

The present tendency in determining the needs of students is concerned with the findings of the basic sciences. 6

Needs of Youth

What are the "Needs of Youth"?—The needs of youth as indicated by the findings of the Committee on the Function of Science in General Education were found to be the four definite classes as follows:

1. Personal living.
2. Immediate personal-social relationships.
3. Social-civic relationships.
4. Economic relationships. 7

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5 Ibid., p. 10.
6 Ibid., p. 10.
7 Ibid., p. 14.
Under the heading of personal living are listed such needs as those pertaining to the development of a sound basis for both mental and physical health, and also the need for developing a satisfying philosophy of life.

Under the heading of immediate personal-social relationships are listed such needs that pertain to the relationship of the family and of other immediate social groups of both sexes, which would include such needs as the need to feel that the child is being accepted as a maturing member of the family and also in the activities of the various age groups with whom he associates.

At the same time that an individual grows in relationship to his home family, and immediate social contacts, he is also becoming increasingly involved with civic or community groups. These include the school, church, club, gang, and many others. The needs here are for assurance that he is growing in ability to accept responsibility, that he is being accepted as a member of these groups, and that his contributions are being valued.

The needs listed under economic relationships would be such as the individual need for assurance that he is growing toward normal participation in the work of society. He needs guidance in the selection of a satisfactory vocation. He needs to learn the value of money and how to buy intelligently. 8

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From the report of the Educational Policies Commission of the National Education Association, published in 1944, it is evident that youth have certain specific needs in common, and society makes certain requirements of all youth. The Educational Policies Commission grouped these into what is known as the imperative educational needs of youth. These are as follows:

1. All youth need to develop salable skills and those understandings and attitudes that make the worker an intelligent and productive participant in life. To this end, most need supervised work experience as well as education in the skills and knowledge of their occupations.

2. All youth need to develop and maintain good health and physical fitness.

3. All youth need to understand the rights and duties of the citizen of a democratic society, and to be diligent and competent in the performance of their obligations as members of the community and citizens of the state and nation.

4. All youth need to understand the significance of the family for the individual and society and the conditions conducive to successful family life.

5. All youth need to know how to purchase and use goods and services intelligently, understanding both the values received by the consumer and the economic consequences of their acts.

6. All youth need to understand the methods of science, the influence of science on human life, and the main scientific facts concerning the nature of the world and of man.

7. All youth need opportunities to develop their capacities to appreciate beauty in literature, art, music, and nature.

8. All youth need to be able to use their leisure time well and budget it wisely, balancing activities that yield satisfactions to the individual with those that are socially useful.

9. All youth need to develop respect for other persons, to grow in their insight into ethical values and principles, and to be able to live and work cooperatively with others.
10. All youth need to grow in their ability to think rationally, to express their thoughts clearly, and to read and listen with understanding.  

The Educational Policies Commission, in connection with what children need to know or understand, recognizes seven educational needs of youth, namely:

1. Education in the areas of self-realization, human relationships, civic responsibility, and economic efficiency.
2. Training for economic efficiency which will equip youth to enter suitable occupations.
3. In some cases, as part of vocational training, employment.
4. Placement in permanent employment.
5. Supplementary education after placement.
6. In some cases, financial assistance to enable youth to take advantages of educational opportunities.
7. Continuous guidance throughout the period of youth.

It has been said that the best preparation for a happy adulthood is a happy and successful childhood. Meeting the demands of life as they arise and the ability to solve the problems of youth are perhaps the most significant aims in secondary education in a democracy. A youth that is lived successfully and happily must function in a number of important fields of human activity. All normally active youths are confronted with certain common problems:

1. How to develop and maintain good health and a sound body.

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10 Educational Policies Commission, The Civilian Conservation Corps, the National Youth Administration, and the Public School, p. 4.
2. How to participate effectively in a happy and successful home life.
3. How to choose and prepare one's self for an occupation and for the other practical problems in individual adjustment.
4. How to participate successfully and with increasing efficiency in social life.
5. How to be increasingly happy in the pursuits of leisure time.

It is noted here that if a youth has a problem to solve in any of the above areas there is a need for education to supply the answer to that problem.

Consideration must be given to the needs as expressed by young people themselves. In a survey made by Doane in which high school students indicated the topics or units of study they would like to have included in the high school curriculum, certain interesting facts were revealed. In the survey a large number of high school students, without prompting, made a list of such topics. The material thus obtained was then organized in terms of general areas and in each general area there were broad headings called "courses", each with a number of sub-headings. One cluster of courses fell in what was called the "personal areas", another presented "social areas", and a third, "other subject areas." The list, so organized, was then presented, more or less in the form of a ballot, to pupils in a number of

high schools. Each student was asked to check five units he most desired, and the five he least desired, to have included in the high school program.

In the personal area, courses on vocational choice and placement received the highest vote, both from boys and from girls. Next in rank was a course in development of social abilities, however, this was the combined opinions of both boys and girls, the boys considering the other areas more important, while the majority of the girls wanted the courses. Third and fourth in rank were two courses relating to sex, one had the general title of Sex, whereas, the other was termed "Relations with the Opposite Sex." Fifth came a course on health.

Both boys and girls placed religion, as a possible need, in last place, while morals ranked third from last. Other courses in the personal area to receive small percentages of the votes was one on finances, another on plans for marriage and family life, another on philosophy of life and mental hygiene. Other courses that were relatively less popular than the courses first mentioned above were units on relationships with the family, leisure time and recreation, morals and religion.

In the "social area" a course including various aspects of history received the highest vote; then government, followed by current problems. Of the four courses in
"other subjects areas" was one with the general title "Music, Art Dramatics", followed in popularity by science and foreign languages, and at the bottom of the list literature. 13

A report prepared by Thayer, Zachry, and Kotinsky for the Commission on Secondary School Curriculum of the Progressive Education Association proposes that the secondary-school curriculum be entirely revised about the needs of youth. The classify the needs in four general areas:

1. Immediate social relationships
   a. Relations with parents.
   b. Heterosexual development.
   c. Expanding meaningful and satisfying friendships and group contacts.
   d. Development of satisfactory ideals and codes of conduct.

2. Wider social relationships
   a. Development of social insight and responsibility.

3. Economic relationships
   a. Understanding of economic society.
   b. Assurance of a responsible role in economic society.
   c. Vocational guidance.
   d. Vocational preparation.

4. Personal Living
   a. Adequate philosophy.
   b. Realization of more abundant personal living. 14

In addition to obtaining employment and progressing and succeeding on the job, youth are particularly concerned with problems, or needs, such as these:

13 Ibid., pp. 55-121.
1. Establishing and maintaining a home under desirable conditions.
2. Preparing for marriage relationships.
3. Adjusting to the immediate family group.
4. Developing acceptable moral and spiritual philosophy of life.
5. Experiencing personal achievement and discovering the ability to do some things well.
7. Participating in normal recreational activities including social opportunities to mix with others of the same age of both sexes.
8. Participating as a member of clubs and organizations.
9. Being socially accepted as a companion to other youth.
10. Earning money to make such acceptance and companionship possible.
11. Assuming civic responsibilities of the community.
12. Understanding social, economic, and political problems in a complex society.
13. Maintaining a good physical condition.15

In order to select the needs of youth to be used as criteria in analyzing the objectives of general education and industrial arts it was necessary to make a study of the needs of youth as presented by various authors and committees in the field. In selecting the needs of youth for this study, consideration was given to the frequency of mention and the reliability of the author or committee. With due consideration to the opinions of various authorities, the following needs of youth have been selected for use in this study:

1. All youth need to develop salable skills and those understanding and attitudes that make the worker an intelligent and productive participant in economic life. To this end, most youth need supervised or

guided work experience as well as education in the
skills and knowledge of their prospective occupations.

2. All youth need guidance in choosing an
occupation and vocational preparation.

3. All youth need to know how to purchase and
to use goods and services intelligently.

4. All youth need to know how to participate in
civic affairs intelligently.

5. All youth need to develop and maintain good
health and physical fitness.

6. All youth need to understand the significance
of the family for the individual and society and the
conditions conducive to successful family life.

7. All youth need to be instructed in the proper
use of leisure time.

8. All youth need to grow in their ability to
think rationally, to express their thoughts clearly,
and to read and listen with understanding.

9. All youth need to develop respect for other
persons, to grow in their insight into ethical values
and principles, and to be able to live and work
cooperatively with others.

10. All youth need to understand democracy.

11. All youth need to know about finances—cash,
credit, and installment buying—which to use and when.

12. All youth need to understand the rights and
duties of the citizen of a democratic society, and to
be diligent and competent in the performance of their
obligations as members of the community and citizens
of the state and nation.

13. All youth need to understand the methods of
science, the influence of science on human life.

14. All youth need to know about sex relationships.

15. All youth need the required knowledge and
skills in fundamentals (reading, writing, etc.).

16. All youth need to know how to make and hold
friends.
CHAPTER V

A COMPARISON OF THE NEEDS OF YOUTH WITH THE OBJECTIVES OF GENERAL EDUCATION AND OF INDUSTRIAL ARTS

Chapters I and II presented the objectives of general education and industrial arts respectively. In Chapter IV the needs of youth were established to be used in a comparison with the objectives of industrial arts and general education. The information thus obtained was used as the basis for determining the relationship of industrial arts to general education.

To avoid repetition of references in discussing Table 1, pages 46-47, and Table 2, pages 48-49, the needs of youth will be discussed in the order that they appear in the Tables 1 and 2. The objectives of industrial arts and general education will be discussed also in the order shown in their respective tables.

To develop salable skills was established as the first need of youth in Table 1. It was shown in the table that general education provides for this need through: (1) vocational training, and (2) social relationships.

In Table 2 it was shown that the industrial arts fulfill the first need of youth, in part, through: (1) developing
<table>
<thead>
<tr>
<th>Needs of Youth (condensed)</th>
<th>Develop salable skills</th>
<th>Vocational guidance and preparation</th>
<th>Consumer education</th>
<th>Know how to participate in civic affairs</th>
<th>Develop and maintain good health and physical fitness</th>
<th>To understand family relationships</th>
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<tr>
<td>Objectives of General Education (condensed)</td>
<td>1. Physical and mental health</td>
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<td>2. Leisure time</td>
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<td>3. Vocational training</td>
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<td>4. Social relationships</td>
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<td>5. Consumer knowledge</td>
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<td>6. Civic responsibilities</td>
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*An X in the space provided designates the specific objective of general education that partially fulfills the corresponding need of youth.*
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<td>Objectives of Industrial Arts</td>
<td>1. Develop salable skills</td>
<td>2. Vocational Guidance and preparation</td>
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<td>4. Know how to participate in civic affairs</td>
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<td>1. Appreciation and respect for labor and good workmanship and design</td>
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<td>2. Interest in industry and in methods of production and distribution</td>
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<td>3. Consumer knowledge</td>
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<td>4. Information and guidance in various phases of industry to help student in choosing future work</td>
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<td>5. Recreational and avocational activities</td>
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<td>6. Careful, thoughtful procedure in performing any task</td>
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<td>7. Basic skill in various tools and machines</td>
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<td>8. Habits of health and safety</td>
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<td>9. Desirable social relationships</td>
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<td>6. To understand family relationship</td>
<td>7. Instruction in use of leisure time</td>
<td>8. To grow in their ability to think rationally and express thoughts clearly</td>
<td>9. Develop respect for others, including one's self</td>
<td>10. To understand democracy</td>
<td>11. To know about finance</td>
<td>12. To know rights and duties of a citizen in a democracy</td>
<td>13. To understand methods of grammar and numeracy</td>
<td>14. To know about sex and responsibilities</td>
<td>15. To understand knowledge and skills in fundamentals of science</td>
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an appreciation and respect for labor, good workmanship, and design, (2) providing information and guidance in helping the student to choose a future occupation, (3) developing the habit of careful, thoughtful procedure in performing any task, and (4) the teaching of the basic skills necessary in handling the fundamental tools and machines of industry.

Vocational guidance and preparation constitute the second need of youth established in Table 1. This need is fulfilled by general education by: (1) physical and mental health training, (2) vocational training, and (3) social relationship training and experience.

✓ Vocational guidance and preparation, the second need of youth, are fulfilled by the industrial arts in the following ways: (1) developing an appreciation and respect for labor and good workmanship and design, (2) development of interest in industry and methods of production and distribution, (3) by giving information and guidance in various phases of industry in order to help students in choosing future work, (4) by gaining skill with many machines and tools in order to select a vocation that is best suited to the individual, and (5) giving instruction in developing desirable social relationships.

The third need of youth is consumer education. According to Table 1, general education contributes to
this need in the following ways: (1) developing social relationships, and (2) giving instruction in consumer education.

The third need of youth, in Table 2, is consumer education. Industrial arts fulfills this need, in part, in the following ways: (1) developing an appreciation and respect for labor and good workmanship and design, and (2) through consumer education.

To know how to participate in civic affairs is the fourth need of youth. General education is designed to care for this need through instruction in: (1) civic responsibilities, and (2) social relationships.

In Table 1 the fifth need of youth is to develop and maintain good health and physical fitness. General education achieves this need by instruction in: (1) physical and mental health, (2) leisure time, and (3) vocational training.

To develop and maintain good health and physical fitness is the fifth need of youth. This need is met, in part, in industrial arts by: (1) giving information and guidance in various phases of industry to help the student in choosing future occupations, and (2) giving instruction in recreational and avocational activities.

The sixth need of youth is to understand family relationships. General education fulfills this need as
follows: (1) instruction in social relationships, and (2) knowledge of civic responsibilities.

Instruction in the use of leisure time is established as the seventh need of youth. This need is met in general education by instruction in: (1) physical and mental health, (2) leisure time, (3) social relationships, and (4) consumer knowledge.

In Table 2 the seventh need of youth is instruction in the use of leisure time. The industrial achieves this need, in part, by: (1) developing an appreciation and respect for labor, good workmanship, and design, (2) supervised recreational and avocational activities, and (3) desirable social relationships.

To grow in their ability to think rationally and express thoughts clearly was established as the eighth need of youth. This need is fulfilled through general education by instruction in: (1) vocational training, (2) social relationships, and (3) civic responsibilities.

The eighth need of youth is to grow in ability to think rationally and express thoughts clearly. This need is met in industrial arts by developing: (1) appreciation and respect for labor and good workmanship and design, (2) interest in industry and in methods of production and distribution, and (3) careful, thoughtful procedure in performing any task.
To develop respect for other persons is the ninth need of youth. General education promotes this need insofar as providing: (1) ways of spending leisure time, (2) vocational training, (3) social relationships, and (4) civic responsibilities in a democratic society.

The ninth need of youth is to develop respect for other persons. Industrial meets this need in part by: (1) developing appreciation and respect for labor and good workmanship and design, (2) giving the student information concerning consumer knowledge, (3) giving information and guidance in various phases of industry to help students in choosing future work, and (4) helping the student to establish desirable social relationships.

One of the greatest needs of youth is to understand democracy. This need is provided for in general education by: (1) teaching democracy in connection with vocational training, (2) experiencing democracy in social relationships, and (3) practicing democracy in civic responsibilities.

To understand democracy is the tenth need of youth. Democracy can be promoted through industrial arts by: (1) teaching youth to respect and appreciate labor and good workmanship and design, (2) presenting information and guidance in various phases of industry to help the student in choosing future work, (3) recreational and
avocational activities, and (4) helping youth to establish desirable social relationships through activities in industrial arts.

To know about finances has been established as the eleventh need of youth in Table 1. General education fulfills this need through: (1) vocational training, (2) social relationships, (3) consumer knowledge, and (4) civic responsibilities.

To know about finances is the eleventh need of youth. This need is found to be achieved through the industrial arts by the teaching of consumer knowledge concerning the things the youth uses.

To know the rights and duties of a citizen in a democracy is the twelfth need of youth. General education fulfills this need through: (1) vocational training, (2) social relationships, and (3) civic responsibilities.

The twelfth need of youth is to know the rights and duties of a citizen in a democracy. This need is promoted in the industrial arts by: (1) developing an appreciation and respect for labor and good workmanship and design, and (2) instruction in desirable social relationships.

The thirteenth need of youth is to understand methods of science. General education provides for this need by instruction in: (1) physical and mental health, (2) leisure time, and (3) occupation, or vocational training.
To understand the methods of science is the thirteenth need of youth. It is fulfilled through industrial arts by: (1) promoting interest in industry and in methods of production and distribution, (2) giving information and guidance in various phases of industry to help students in choosing future work, (3) providing instruction in recreational and avocational activities, and (4) instruction in habits of health and safety.

The fourteenth need of youth is to know about sex relationships. General education provides for this need through instruction in: (1) physical and mental health, and (2) social relationships.

The fifteenth need of youth is to have the required knowledge and skills in fundamentals. General education fulfills this need through instruction in: (1) physical and mental health, (2) leisure time, (3) social relationships, (4) consumer knowledge, and (5) civic responsibilities.

To have the required knowledge and skills in fundamentals is the fifteenth need of youth. It has been shown in Table 2 that industrial arts meets these needs by: (1) teaching an appreciation and respect for labor and good workmanship and design, (2) instruction in consumer knowledge, (3) careful, thoughtful procedure in performing any task, (4) development of basic skills in various tools and machines of industry, (5) developing habits of health and safety, and (6) desirable social relationships.
How to make and hold friends is the last need of youth established in Table 1. This need is achieved through general education by instruction in: (1) leisure time activities, (2) occupational or vocational training, and (3) development of social relationships.

How to make and hold friends is the sixteenth and last need of youth established in Table 2. This need is fulfilled by the industrial arts by developing: (1) an appreciation and respect for labor and good workmanship and design, (2) recreational and avocational activities, and (3) desirable social relationships.
CHAPTER VI

SUMMARY AND CONCLUSIONS

Summary

This study was based primarily upon three factors, (1) the objectives of general education, (2) the objectives of industrial arts, and (3) the needs of youth. In Chapter II of this study a brief history of the development of general education was presented and the objectives of general education were selected. The objectives of several committees in the field were presented in order to achieve a more accurate group of objectives for this study. General education was defined as that type of education that is sufficiently broad and flexible to deal with the needs and interests of every individual in order that he might live and meet the problems of life more easily and efficiently during youth as well as a preparation for adult life. The following objectives were selected in order to comply with the requirements set forth in the definition of general education:

1. Physical and mental health.
2. Use of leisure time.
3. Vocational training.
4. Social relationships.
5. Consumer knowledge.
6. Civic responsibilities.
Chapter III establishes the objectives of industrial arts. The work of several authors and committees in the field were assembled and presented in order that a more accurate and worthy group of objectives could be established for the study. Industrial arts was defined as the broad study of the materials, tools, products, occupations of industry, and the problems of life resulting from the industrial nature of society, to enable an individual to live more effectively. With the consideration to the definition of industrial arts and to the groups of objectives presented, the following group of objectives were selected:

1. To develop an appreciation of and respect for labor and good workmanship and design.
2. To develop an interest toward industry and in methods of production and distribution.
3. To increase consumer knowledge in order that the students can select, buy, use, and maintain the products of industry intelligently.
4. To provide information concerning the various phases of industrial occupations in order that students may more intelligently choose a future vocation.
5. To promote recreational and avocational activities in the areas of industrial arts.
6. To develop a careful, thoughtful procedure in performing any task.
7. To develop a certain amount of skill in the use of a number of the basic tools in the household and in industry.
8. To promote habits of safety and health in relation to shop activities and conditions.
9. To develop desirable social relationships such as cooperation, leadership, fellowship, and tact.

The needs of youth approach to curriculum reconstruction and guidance is the greatest advancement in education in the
past generation. A curriculum based upon the needs of youth embodies those knowledges that should be common to every youth in order that he might live more intelligently and efficiently. In Chapter IV several references by authors and committees in the field were studied in order to arrive at a detailed, comprehensive group of the needs of youth. With due consideration to the opinions of the various committees and authors, the following needs of youth have been selected:

1. All youth need to develop salable skills and those understandings and attitudes that make the worker an intelligent and productive participant in economic life. To this end, most youth need supervised or guided work experience as well as education in the skills and knowledge of their prospective occupations.

2. All youth need guidance in choosing an occupation and vocational preparation.

3. All youth need to know how to purchase and to use goods and services intelligently.

4. All youth need to know how to participate in civic affairs intelligently.

5. All youth need to develop and maintain good health and physical fitness.

6. All youth need to understand the significance of the family for the individual and society and the conditions conducive to successful family life.

7. All youth need to be instructed in the proper use of leisure time.

8. All youth need to grow in their ability to think rationally, to express their thoughts clearly, and to read and listen with understanding.

9. All youth need to develop respect for other persons, to grow in their insight into ethical values and principles, and to be able to live and work cooperatively with others.

10. All youth need to understand democracy.
11. All youth need to know about finances--cash, credit, and installment buying--which to use and when.

12. All youth need to understand the rights and duties of the citizen of a democratic society, and to be diligent and competent in the performance of their obligations as members of the community and citizens of the state and nation.

13. All youth need to understand the methods of science, the influences of science on human life.

14. All youth need to know about sex relationships.

15. All youth need the required knowledge and skills in fundamentals (reading, writing, figuring problems).

16. All youth need to know how to make and hold friends.

In Chapter V the objectives of industrial arts and general education were analyzed with regard to the needs of youth to determine in just what ways general education and industrial arts were meeting the needs of youth.

In comparing the analysis of the needs of youth in relation to the objectives of industrial arts and general education it was found that general education provides the broad, flexible educational program as basis for the fulfillment of the needs of youth. With the exceptions of needs 4, 6, and 14 as listed in Table 2, page 48-49, the industrial arts were found to provide for the needs of youth through actual experience in and with the situations of life, making for specific life-like problems that the student can understand.
Conclusions

As a result of this study it is concluded that in reorganizing the curriculum, or devising a course of study for any subject, the needs of youth and the areas of living approach should be considered as a primary factor.

The relationship of industrial arts to general education exists in that general education is the broad, flexible type of educational program that deals with the needs and interests of the students; the industrial arts provide for the partial fulfillment of many of the basic needs of youth.

The industrial arts are a fundamental part of general education.
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