I N D U S T R I A L A R T S

I N

P R O G R E S S I V E E D U C A T I O N

INDUSTRIAL ARTS
IN
PROGRESSIVE EDUCATION

By

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CHAPTER I

THE PROBLEM: ITS ORIGIN, METHOD OF SOLUTION AND OUTCOMES

Industrial arts, first called manual training, was introduced into America following 1776 and the Centennial Exhibition in Philadelphia. Its adoption into the curriculum of the American schools was relatively slow until after the beginning of the current century. Today this subject is generally considered as an integral part of the educational plan of the secondary schools of this country.

Due to its rapid rise to prominence and to the present security of industrial arts in the curriculum of today, there has developed in teachers of industrial arts a general feeling of complacency and self-satisfaction to the extent that in many cases the program has become static. Instructors of this subject should be diligent in studying the possibilities by which the program can be improved. One source of information and inspiration might be found in a study of the theory and practices of progressive education groups.

Under this new philosophy of education, progressive education groups are striving to develop new subject matter, techniques, procedure and practices in education in an attempt to improve the effectiveness of the educational process. These new developments in education should stimulate instructors and educational leaders into examining their particular programs for possibilities of improvement.

One of the late experiments in progressive education is the Eight Year Study of the Progressive Education Association. This study was begun in thirty secondary schools throughout the United States in an

attempt to develop new methods of improving instruction in the secondary school.

The Problem. There is much confusion in the thinking of instructors, as well as administrators of industrial arts, as to the place this subject should have in a school operating under the theory of progressive education. Perhaps some of this confusion can be dispelled by determining the present status of industrial arts in a representative number of schools which are experimenting with the progressive education theory. There also seems to be a wide variation of ideas as to what changes should be made in industrial arts to make it a functional part of progressive education. This study will examine the changes which have been made in industrial arts instruction in several progressive education experimental schools, for the purpose of the clarification of this question. The outcome of the study will be the tentative determination of: The Place of Industrial Arts in Progressive Education.

Need for this Study. This study will serve the purpose of meeting an immediate need of the writer for a better understanding of progressive education, its theory and practices. It will also serve as a guide to follow in proposing reorganizations and readaptations in the industrial arts offerings of the progressive education experimental school, in which the writer is an instructor. It may conceivably inspire others who find themselves in a similar situation. This study should help to clarify the thinking as to the place industrial arts does have and will ultimately demand in progressive education.

Extent of the Study. This study is to be limited to an analysis of industrial arts in the thirty secondary schools which are participating in the Eight Year Study of the Progressive Education Association. Of the experiments which are being carried on at the present time in the field of progressive education, the Eight Year Study is one of the most extensive and covers a fairly representative cross-section of the American secondary school. This study will consist of a survey of industrial arts in a selected group of the schools within the Eight Year Study and bring to light the changes which have been made since the beginning of the experiment.

Research Technique Used. Due to the geographic location of these experimental schools of the Progressive Education Association, it was necessary to use the questionnaire method of collecting information concerning the status of and changes which have been made in the several industrial arts departments.

Letters were first sent out to all of the twenty-nine school systems* which are now participating in the Eight Year Study of the Progressive Education Association, asking for the following information: (1) the names of the industrial arts instructors in the experimental schools; (2) the subjects these industrial arts instructors teach, and (3) the name of the director of industrial education who is over the industrial arts department in the experimental schools.

Answers to these letters were received from twenty-four of the twenty-nine schools to which letters were sent. Of the twenty-four

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*See list of original thirty schools on page 54A Pelham Memorial High School, Pelham, New York, withdrew in 1934.

schools answering the letters, two reported having a city director of industrial education who supervised the industrial arts in their experimental schools. Twelve of the schools reported not having a director or supervisor and a range of from one to eight industrial arts instructors.

To the schools having a city supervisor or director of industrial education over the experimental schools, the questionnaires were sent to these men. In the case of the smaller schools, the questionnaires were sent to one of the instructors of the industrial arts department.

Out of the twenty-two schools to which questionnaires were sent, fifteen replies have been received. The answers to these questions have been summarized and arranged into various tables and charts to make the task of interpretation easier and more exact.

The library technique of research was used in collecting data and information concerning the history and philosophy of progressive education and concerning the Eight Year Study of the Progressive Education Association.

Predicted Outcomes of This Study. The following outcomes of this study are predicted by the writer: (1) to make for a better understanding of progressive education and its theory and practice; (2) that the information will serve as a guide in proposing reorganizations and readaptations in industrial arts; (3) that this study may inspire industrial arts instructors who are not familiar with progressive education to examine their programs for possible points of improvement, and (4) that this study will tentatively determine: The Place of Industrial Arts in Progressive Education, which becomes the title of this report.

A preliminary study of the development of progressive education as a new system or plan of education is necessary before proceeding to a study of its relationship to industrial arts. Chapter II will consist of a review of the history and growth of progressive education.

CHAPTER II

THE PROGRESSIVE EDUCATION MOVEMENT

Today there is a spirit of change in education sweeping the country. The direction of this change seems to be moving from the traditional subject-field organization of the curriculum toward integration. This spirit of change has been influenced and stimulated by the progressive education movement.

A brief study of the history of progressive education will help to better understand the nature of the new movement in education.

PART A

THE ANTECEDENTS OF PROGRESSIVE EDUCATION

Antecedents. The beginning of what is known as progressive education dates back to remote times. The names of the educational reformers who influenced the early leaders of the progressive education movement extended historically from Socrates to Rousseau, Pestalozzi, Herbart, and Froebel. The efforts of scientists during the seventeenth and eighteenth centuries to develop the scientific method and to apply it to the study of the mind and to the study of human relations were important factors in the reconstruction of twentieth-century American education along the principles of progressive education.

Pioneers of Progressive Education. Among the American pioneers of educational reform who more directly influenced the progressive education movement, special mention should be made of Francis W. Parker and

John Dewey. Parker, in the public schools of Quincy, Massachusetts, and later at Chicago, made an important contribution in his insistence that the child should be the center about which the subjects of study were to be organized and through his efforts to work out a course of study based upon that belief. Under his leadership, the Cook County Normal School and the Chicago Institute became important centers for the training of teachers, many of whom later become associated with progressive education schools and played an important part in developing practices based on the progressive theory.

The educator whose work has most profoundly influenced the progressive movement is John Dewey. It has been said that it was he who first realized the need of applying the scientific method in the reconstruction of education. His laboratory school which was established at the University of Chicago in 1896, differed widely in theory and practice from other schools of that time. Its aim was to further the application of scientific concepts and methods to the conduct of school work.

Private School Experimentation. During the early part of the current century, many privately supported schools, scattered throughout the country, experimented with curricula in which there was to be more educational freedom for the student. Some of these schools were inspired by the work of Francis Parker and other early educational leaders while some were inspired by the writings of John Dewey. These early experiments were carried on independently of each other and were scattered over various

parts of the country. It was not until the year 1918 that any attempt was made to unify the efforts of those who were experimenting with this type of education. After this date, the history of the Progressive Education Association and of progressive education are inextricably entwined.

The Progressive Education Association. In the winter of 1918 and 1919, a small group of teachers and laymen who were interested in this new type of education, met weekly in Washington, to develop plans to organize the scattered attempts at educational reform which were going on in various parts of the country. Through organization they aimed to unite those engaged in experimental work and to enlist the interest of the lay public, thus building up an informed public opinion regarding the new type of education. Because no other name which was suggested at the time seemed more appropriate, they called the new organization the Progressive Education Association.

The first public meeting of the Association was held in Washington in March, 1919. This meeting was followed by a conference in the same city in 1920. Since then, annual conferences, open to the public, have been held in various cities.

Official Journal. The publication of the Official Journal, Progressive Education, was begun in 1924 as a chief means of keeping in touch with the members of the Association.

The first decade of the work of the Progressive Education Association was one of pioneering. During those years the attention of the Association was centered primarily on developing the methods and techniques that would

promote the growth of children through guidance of their natural activities. The scientific study of child development was then in its infancy. Few of the advocates of this freer type of education approached their problems from a scientific point of view, but their conclusions were predicated on their knowledge and understanding of children gained from personal experience with them.

Elementary Schools. Most of the early experimental schools were schools for young children, rarely extending beyond the elementary school level. Changes in secondary-school practices were greatly hampered by the obligation of preparing their students for college entrance examinations. The Association soon expanded the scope of its endeavors to include all phases of education from the nursery school through college, as well as the field of parental and adult education.

Professional Growth. There has been a steady growth in professional character of the membership of the Association since its beginning. With the entrance into the movement of those interested in a more professional approach to the problem of the new education, there has been greater concern with the environmental influences on the student. This change in membership also caused a change in the breadth of the emphasis of the Association from the narrow problems of child growth, which occupied the attention of members in the earlier days, to the consideration of questions which relate to our present economic and social life.

Literature on Progressive Education. The many questions raised by the present generation of young people has created a demand for materials of instruction and means for dealing with them. The Commission on Human Relations of the Progressive Education Association undertook to prepare materials which would help to meet this demand. Two types of materials were prepared. First, materials which would be helpful for adults who were working with adolescents. Second, materials for young people, their parents and teachers. Much of this literature fell in the areas around which a number of the questions of adolescents center, such as, problems of family living or the students concern about normality.

PART B

LITERATURE IN PROGRESSIVE EDUCATION

Literature Concerning the Family. A good example of the materials prepared for young people concerning the question of family living is the book entitled, Society and Family Life*. Such questions as, "what is a father?", "what is a mother?", "what are the psychological roles they play?", are discussed. Two chapters are devoted to a discussion of the American scene, describing the family beginnings in the Colonial days and analyzing present trends in family living. Facts about family income, expenditures for food, clothing, shelter and savings are discussed. The relation of health, medical service and mortality rates to income is also included.

*Progressive Education Association, Commission on Human Relations, Society and Family Life, D. Appleton Century Co., New York, 1938

A source book entitled, The Family Past and Present,* was published by the Progressive Education Association for college students and teachers and those high school students who wish to pursue questions beyond the scope of society and family life.

Another source book has been prepared especially for teachers. This book is titled, Patterns of Family Life in Primitive Societies.** This work shows the development of the family pattern; follows through sixteen hundred years in Europe; points out family traditions; traces the effect on the family of the commercial and industrial revolution in England; then turns to American historical background; gives treatment to families in mill towns, mining centers, metropolitan areas and on the farms. The effects of the depression on the family are also summarized.

This is a fair sample of the literature which has been prepared and published by the Progressive Education Association concerning the family.

Literature Concerning Human Behavior. The desire of young people to understand the factors involved in their own behavior and the behavior of other people led to the publishing of the book, Psychology and Human Living, by the Progressive Education Association. This book deals with the psychological factors in human living. Many case studies and literary excerpts which reveal human beings in action are given. The discussion makes clear the belief that human needs operate in an organic whole, from which any specific need cannot be separated. Particular attention is

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* Stern, Bernhard J., The Family Past and Present , Commission on Human Relations, P.E.A., D. Appleton Century Co., New York, 1938.

** Progressive Education Association, Commission on Human Relations, Patterns of Family Life in Primitive Societies, D. Appleton Century Co., New York, 1938.

given to response in love and affection, need for power and personality development.

This explanation gives some idea of the kind of information which has been prepared and published concerning human behavior. Source books for the use of the teachers have been prepared for use in connection with this type of material.

Literary Material. Through the emotions and the imaginative experiences offered by literature, it is thought that youth may be helped to understand themselves and the world about them better, and may acquire insight that can be carried over into actual personality and conduct. The book, Literature and Human Relations,* published by the Progressive Education Association is based upon this belief.

Material on Life and Growth. The Progressive Education book, Life and Growth,** was written to give to the high school students material in which they may find answers to many of their questions about normality and the many areas of growth and development. It deals with physical growth, mental growth, social growth and heredity. Source books for Life and Growth have been written, which give background for the teacher in using this book in the classroom.

Material for Parents. To help parents to understand the changing needs of their children who are passing through adolescence, the book,

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* Progressive Education Association, Commission on Human Relations, Literature and Human Relations, D. Appleton Century Co., New York, 1938.

** Keliher, Alice V., Life and Growth, D. Appleton Century Co., New York, 1938, 245 pages.

Do Adolescents Need Parents,* was produced by the Commission on Human Relations of the Progressive Education Association. This book deals with the question: "What are the necessary roles of parents?". Important needs of the adolescent are summarized.

Material on the Philosophy of Progressive Education. Many publications have been sponsored by the Progressive Education Association concerning the theory, philosophy and practice of progressive education. Growth and Development: The Basis for Educational Programs, ** is a good example of this kind of literature. This title was the central theme of the conference of the Progressive Education Association held in Chicago in 1936. The book is made up of papers given at this conference. The following are acharacteristic of the subjects discussed in this book:

1. Men and women as parents and people.
2. Unifying factors in family life.
3. The learning process.
4. Education neglects a tool.
5. The challenge to reconstructed practice.
6. The opportunities of free-lance schools.

There is no sequence to the subjects discussed in this book. Each topic is complete within itself and not necessarily related directly to any of the other subjects. The following quotation is from the last mentioned topic, by W. Carson Ryan, Junior, which gives a glimpse into the book: (15 page 279)

> It seems to be the almost universal fate of pioneer educational enterprises to lose their pioneering spirit, to become outmoded, to persist long after the original motive force is gone. The Hemenway Gymnasium at Harvard University, said to have been the first modern college gymnasium, was one of the

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* Taylor, Katharine Whiteside, Do Adolescents Need Parents?, D. Appleton Century Co., 1938, 380 pages.

** Progressive Education Association, Growth and Development: The Basis for Educational Programs, Progressive Education Association, 310 West 90th St., New York, 1936, 292 pages.

> last outworn gymnasiums to be abandoned. American cities with an early and deserved reputation for educational advance, are now conspicuously among the most backward. In the United States, the kindergarten, developed out of a remarkably sound educational philosophy, eventually came to be a curiously formal type of training, from which it has only recently been rescued by modern educational workers. "Manual training", born of genuine educational needs, became so conventional as to surpass, in some places, even the so-called "academic" subjects in its formality.

Here Ryan is warning progressive educational schools of the danger of standardizing their programs.

Other References. Another book on the subject of philosophy is: Readings in the Philosophy of Education, by Edward A. Fitzpatrick. This is intended for use both on the graduate and undergraduate level. Education as Cultivation of the Higher Mental Level, by Charles H. Judd, is a book designed to illustrate the possibility of achieving the ends thought of as desirable by the progressive education leaders without sacrificing the gains which have come to thinking, through orderly organization of ideas. American Life and the School Curriculum, by Harold Rugg of the Teachers College, Columbia University. This book is a treatment of American culture and education. Other books by this author are: The Child Centered School; The Great Technology; Social Chaos and the Public Mind and Culture and Education in America.

The Progressive Education Magazine which is the official journal of the Progressive Education Association carries the bulk of progressive education literature. Through this magazine the members of the Progressive Education Association have kept in touch with the leadership in the progressive education movement.

PART C

PERSONALITIES IN PROGRESSIVE EDUCATION

Many personalities have become generally known among educators throughout the country as the progressive education movement has gained recognition. These leaders have become known through the writing of magazine articles; as authors of books concerning progressive education subjects; as heads of progressive education experimental schools; as heads of progressive education commissions; educational philosophers and various other functions in which they have engaged. The following information concerns only a few of the outstanding leaders in the field of progressive education since space does not permit the entering of more names.

Alberty. Professor Harold B. Alberty, of the Department of Education at Ohio State University is one of the leading philosophers in the progressive education movement. Alberty is a member of the Yearbook Committee of the John Dewey Society. As co-editor with Boyd H. Bode, the second yearbook of the John Dewey Society was published in 1928. The title of this book is Educational Freedom and Democracy. Alberty has made many contributions to the Progressive Education Magazine and other educational journals concerning progressive education.

Tyler. One of the great leaders in progressive education was born in Chicago in 1902. Ralph W. Tyler's undergraduate work was completed at Doane College. He received his Masters Degree from the University of

Nebraska in 1923 and the Ph.D. from the University of Chicago in 1927. He was a high school teacher at Pierre, South Dakota, in 1921; assistant supervisor of sciences at the University of Nebraska from 1922 to 1927, and the following two years was associate professor of education at the University of North Carolina. He was appointed associate professor of education at the Ohio State University in 1930 and in 1931 was given the rank of professor. While working for his doctorate, Mr. Tyler studied chiefly with W. W. Charters, head of the department of education at Ohio State University, and Karl J. Holzinger, whose field is that of statistics and educational measurements. Mr. Tyler has served as research associate of the Bureau of Educational Research of the Ohio State University along with his other duties. Recently he has been appointed professor and head of the department of education and chief examiner of the Board of Examinations of the University of Chicago. Mr. Tylers' outstanding work in progressive education has been in the field of evaluation. He has served as the head of the evaluation committee for the Eight Year Study of the Progressive Education Association. His evaluation plan is outlined in a later chapter of this study.

Kilpatrick. One of the professors of educational philosophy at the Teachers College, Columbia University, William Heard Kilpatrick, retired in June, 1937. The editor of the Nations' Schools, speaks of Kilpatrick: (6, page 15)

> . . . . . .
> When the story of the development of public education is written for this generation, it is our belief that William H. Kilpatrick will rank among half a dozen teachers and leaders whose influence

> was large in the progressive evolution of public education in these United States. Some will remember him more as a fervent disciple and expositor of the Dewey philosophy than as one having a definite creative spirit of his own.
>
> . . . . . .
>
> Professor Kilpatrick's work has been in the field of philosophy. His influence has been felt throughout the field of progressive education.

Ryan. One of the staff associates of the Carnegie Foundation for the Advancement of Teaching and an early officer of the National Vocational Guidance Association, Carson W. Ryan is now chairman of an important committee on relation of secondary schools and colleges to the Progressive Education Association. In 1918, Ryan was specialist in Vocational Guidance in the United States Bureau, now Office of Education. He is also former president and secretary of National Vocational Guidance Association. Ryan has had rich experience as a teacher, editor, and consulting expert and specialist in vocational education and guidance for the United States Bureau of Education and has conducted many educational surveys. (17, page 168)

Ann Shumaker. Miss Shumaker was editor of Progressive Education from November, 1930, to August 1934. In private life, Miss Shumaker was Mrs. Isador Lubin, wife of the United States Commissioner of Labor Statistics. She was co-author with Harold Rugg of, The Child-Centered School, an important contribution to modern education; and co-editor with Gertrude Hartman of Creative Expression. (14, page 500)

These and many others have proven themselves outstanding as leaders in the Progressive Education Movement. Their influence has been felt

throughout the Progressive Education Association. They have guided the Association in its many functions to the best interest of the Progressive Education Movement.

Functions. The Association does not compete with other educational organizations, nor does it wish to duplicate their functions. Its policy is to work out a cooperative relationship with them. As new social and educational problems arise, the Association is interested in the initiation and development of new programs which seem important for the advancement of education. If there are programs of education to be worked out which no other organization is equipped to initiate, the Association will accept the task. The Association is particularly concerned with the initiation and development of new programs. It serves two professional groups; those who are just beginning to adopt the progressive education practices and those whose interest in progressive education is of long standing. Study conferences and summer work shops have been developed to meet the needs of this situation. For the past few years a research program has been carried on by means of committees, and commissions. At present there are five commissions and five committees actively at work.

The New Educational Fellowship. Educational unrest has not been confined to the United States. At about the same time that the early leaders were at work establishing schools in this country, isolated experiments were started in various countries abroad, and gradually the movement spread through Europe. The World War added new zeal to the

efforts of those who were seeking better educational opportunities for youth, and shortly after the War the various experiments were brought together into the New Educational Fellowship. This has now grown into an organization with representatives in fifty-one countries throughout the world. In 1932 the Progressive Education Association became the United States section of the New Educational Fellowship. The united efforts of these organizations are having a noteworthy influence in bringing about changes in education throughout the world.

The educational philosophy of the early leaders of progressive education served as the basic philosophy of the Progressive Education Association when it was started in 1918. To a certain extent this philosophy is still the guiding light of the progressive movement today. The following chapter will deal with the philosophy of progressive education and the educational beliefs and objectives of the Progressive Education Association as a way of solving the needed change in education.

PART D

COMMITTEES AND COMMISSIONS

The Progressive Education Association has been carrying on research programs by means of the following commissions and committees:

The Commission on the Relation of School and Colleges was established in 1930 to aid in the development of a secondary school on the theory of progressive education by initiating an experiment in cooperation with colleges and universities. (13, page 17)

The Commission on the Secondary School Curriculum was appointed in 1932. This commission was charged with the study of the problems of secondary education in the light of the felt needs of all classes of adolescents and the society in which they live. (13, page 36)

The Commission on Educational Freedom was appointed in 1935 to give support to the protection of the educational freedom of teachers and students. It is concerned with "sensitizing educators and parents to the importance of preserving this essential of democracy." (13, page 16)

The Commission on Human Relations was appointed in 1935 to carry on the work of collecting materials which would help create more adequate and realistic interpretations of human relations, new insights, and more human aspirations. The task of reorganizing and rewriting this material and making it easily accessible to young people, their parents and teachers, was also delegated to this commission. (13, page 50)

The Commission on Intercultural Education was appointed in 1936. This commission concerned itself with the misunderstandings and tensions which exist among the various cultural groups that are a part of American communities. (13, page 16)

The Committee on Progressive Education in Rural Schools, has been carrying on a survey of the utilization of the environment in the curriculum in the rural schools. An advisory service for rural schools concerning progressive education programs is being prepared by this committee. (13, page 14)

The Committee on Community School Relations is concerned with the study of the relationships of the school with its community environment. (13, page 15)

The Committee on Experimental Schools is setting up a clearing house of information about experimental schools.

The Committee on Child Development is working on a program of research and investigation designed to utilize research findings from the field of childhood development.

The Committee on International Relations represents the Progressive Education Association internationally, assisting in the planning of world regional conferences and making recommendations on American participation in other international activities of education. (13 page 15)

Other means of expanding and developing progressive education has been through the summer work shops and regional conferences.

The Progressive Education Association, through its many commissions, committees and the Progressive Education Magazine, has extended the progressive education movement. Today this movement is considered the most outstanding educational movement under way. It has reached beyond the private grade schools in which most of the early experiments were conducted. Now the theory and practice of progressive education is being tried on the secondary school level. Chapter III concerns the reconstruction of the secondary school under the philosophy of progressive education.

CHAPTER III

RECONSTRUCTING THE SECONDARY SCHOOL UNDER THE PHILOSOPHY OF PROGRESSIVE EDUCATION

From the beginning of the publicly supported secondary school more than a century ago, it has been regarded primarily as a preparatory school leading to higher education. The curriculum has been handed down from the higher levels, and the success of the student has been measured in terms of his achievement with respect to the mass of subject matter, which it was assumed, served best in his preparation for further education. Progressive education proposes a secondary school curriculum with the student as the central factor and with the belief that real education grows out of human experiences; subject matter should be adapted to the individual; normal interests should precede the imposition of subject matter and the individual should be dealt with as a whole personality, in all educational planning.

PART A

REASONS FOR A CHANGING SECONDARY SCHOOL

Our pattern of society is continually undergoing changes. Our mode of life has been greatly affected by inventions and discoveries. Improved methods of transportation and communication have caused the world to shrink physically, bringing people closer together. Society has been changed by the increase in the variety of construction materials and the methods of construction. The constant increase in labor saving

devices has relieved man from much of the heavy labor. The transfer of intelligence to machines and the development of time saving devices have reduced the long hours of work. Today the worker finds many free hours at his disposal for leisure-time activities. Changing methods of living have revolutionized home and family occupations and responsibilities. We are living in a social system in which thousands of American youth who leave our secondary schools every year are unable to find employment or a satisfactory use of their enforced leisure.

A Heterogeneous Student Body. The secondary school student body has changed. Since 1890, the general population has increased 105 percent, while the high school enrollment has increased 2,855 percent or more than twenty-seven times as fast as our total population. Today the student body of the secondary school represents an approximate cross-section of society in contrast to the select, homogeneous group which made up the student body in the earlier secondary schools.

Traditional Curriculum Not Meeting Present Needs. The college preparatory type of secondary school is not meeting the needs of the majority of its students. In view of the facts given, it is evident that some kind of change is needed in the secondary school curriculum.

President Roosevelt's advisory committee on education, made the following statement in its report concerning the need for a change in the curriculum of the American secondary school: (1, page 98)

> The failure of the secondary school to hold its pupils can be ascribed for the most part to two major causes, one of which is economic and the other is curricular . . . The curricular cause consists simply in the failure of the school to provide a course of study that retains the interest of the pupil, or that appeals to him as at all useful or appropriate. The schools are not responsible for the loss of pupils through economic circumstances beyond their control, but they must accept a large measure of responsibility for an unsatisfactory curriculum.

This statement supports the fact that the secondary school is not meeting the present day educational needs of the majority of American youth.

Traditional Curriculum Stifling Natural Growth. It has been claimed by progressive educational leaders that the development of mass education in the nineteenth-century American secondary school with its formal, standardized subject matter and rigid system of grading was stifling the natural powers of the students, instead of promoting their growth. The secondary school has been dominated by accrediting agencies and higher institutions. This domination has caused the secondary school to model its curriculum after that of higher education which has emphasized the acquisition of culture, academic interests and knowledge for the sake of knowledge.

There is a need for a change in secondary education due to the fact that it evidently is not meeting the educational needs of modern youth in the modern world. Progressive education offers a new philosophy in reorganizing secondary education in many schools throughout the country.

PART B

THE PHILOSOPHY OF PROGRESSIVE EDUCATION

No comprehensive statement of the philosophy of progressive education has been officially issued by the Progressive Education Association. However, one of the first tasks of the Progressive Education Association, after its organization, was to formulate a set of statements of its educational beliefs.

Educational Beliefs of the Progressive Education Association. The following educational beliefs were agreed upon by the Progressive Education Association at one of its early meetings. They were to serve as a working basis for the association. These beliefs were: (13, page 5)

> Freedom to Develop Naturally. The conduct of the pupil should be governed by himself according to the social needs of his community rather than by arbitrary laws. Full opportunity for initiative and self-expression should be provided, together with an environment rich in interesting material that is available for the free use of every pupil.
>
> Interest the Motive of all Work. Interest should be satisfied and developed through: direct and indirect contact with the world and its activities, and the use of experiences thus gained; application of knowledge gained, and correlation between different subjects; and the consciousness of achievement.
>
> The Teacher, A Guide, Not A Taskmaster. Progressive teachers will encourage the use of all the senses, training the pupil in both observation and judgment, and, instead of

hearing recitations only, will spend most of the time teaching how to use various sources of information, including life activities as well as books, how to reason about the information thus acquired, and how to express forcefully and logically the conclusions reached.

Scientific Study of Pupil Development. School records should not be confined to the marks given by the teachers to show the achievement of the pupils in their study of subjects, but should also include objective and subjective reports on those physical, mental, moral and social characteristics which affect both school and adult life, and which can be influenced by the school and the home.

Greater Attention to all that Affects the Child's Physical Development. One of the first considerations of progressive education is the health of the pupil. Much more room in which to move about, better light and air, clean and well ventilated buildings, easier access to the out-of-doors and greater use of it, are all necessary. There should be frequent use of adequate playgrounds.

Cooperation Between School and Home to Meet the Needs of Child Life. The school should provide, with the home, as much as is possible, of all the possible interests and activities that the child demands, especially during the elementary school year.

The Progressive School a Leader in Educational Movement. The progressive school should be a leader in educational movements. It should be a laboratory where new ideas, if worthy, meet encouragement; where tradition alone does not rule, but the best of the past is leavened with the discoveries of today, and the result is freely added to the sum of educational knowledge.

These statements of the beliefs of the Progressive Education Association are primarily concerned with the problem of child growth. The social-economic crises of recent years have caused a shift in emphasis

from the problems of child growth to the consideration of questions of our economic and social life. It is inherent in the nature of progressive education that its philosophy should be dynamic in character, responsive to every changing social and educational need, and that it should be flexible enough to allow for the original contributions of many minds.

The Worth of the Individual. Throughout the progressive education movement there has always been a special emphasis on the importance of the individual, but the individual is not visualized as separate from the group. One of the concepts finding general support among the progressive educational leaders is that of growth and organic response. Man and society are considered as interrelated. It is this concept which reinforces the belief that the curriculum of the school should be developed in relationship to the nature of the community, and that education is not preparing for living but is life itself. It is also this concept which stresses the continuity of education and the belief that education goes on through life. These statements of educational beliefs give evidence of the fact that a new psychology is employed in the philosophy of progressive education.

Organismic Psychology. The new psychology which forms the psychological basis of progressive education deals with the individual as a whole integrated personality. It follows the belief that learning experiences change the whole organism and that the individual and his environment cannot be dissociated. Norton and Norton (10, page 40) explain this

new psychology as follows:

> Organismic psychology holds that the whole organism is changed in each learning experience and that all learning consists in insight. Furthermore, an organism and its environment are one in the sense that they cannot be understood apart from one another. Since the individual and his environment cannot be dissociated, the interaction of the two is of extreme importance.

Thus, the educational process is going on during all of the time the individual is awake, whether in the classroom, at home or wherever he may be. The chief function of the school, therefore, is to achieve integration between the individual and his environment. This is reflected in a statement by Carson W. Ryan, one-time editor of the Progressive Education Magazine, concerning the philosophy of progressive education: (16, page 1)

> Progressive education assumes that human beings should learn in the most effective manner possible, through real experiences as opposed to mere verbalization, and that all of life should be included in this learning; that they should learn under conditions that emphasize the worthwhileness of individual human beings, to the end that each individual may make the most of himself for his own sake and that of society; that through education there should come a better understanding among people, and that the educational process should be constantly directed toward a progressively better way of living.

Integration. To make for better integrated instruction, progressive education has attempted to put the curriculum requirements in rapport with the requirements of modern life. This is reflected in the definition of education, taken from Science in General Education. (12, Chapter II, page 1) This pronouncement defines education in these words:

> The purpose of general education is to provide rich and meaningful experiences in the basic aspects of living, so directed as to promote the fullest possible realization of personal potentialities and the most effective participation in a democratic society.

The basic aspects of living are pointed out to include: (1) personal living; (2) immediate personal-social relationship; (3) social-civic relationship, and (4) economic relationships.

The personal potentialities are interpreted to include: (1) creativeness; (2) creative interests; (3) appreciations; (4) social sensitivity; (5) cooperativeness; (6) reflective thinking, and (7) readiness to act on the basis of tentative judgment.

This definition of education reflects the philosophy of progressive education. Its main objective is the complete integration of the individual with his environment and with society in general. It centers the educational scheme around the needs of the individual.

In summary, progressive educational practices are based upon the beliefs that: (1) the development of normal interests precedeSthe imposition of subject-matter; (2) real education grows out of human experiences rather than from the mere acquisition of information from books or the cultivation of skills for deferred needs; (3) subject matter should be adapted to the needs of the individual; (4) motivated work achieves richer results than passive learning and (5) the individual is a whole personality who must always be thought of as a whole personality in all educational planning. (12, page 12) To achieve the purposes of education as formulated, a new type of curriculum is needed.

PART C

THE NEW CURRICULUM

The attempts at curriculum reorganization have brought into the literature concerning education a number of terms which are used in

reference to the new curriculum. Basic courses, unified studies, integrated courses, stem courses, social-living courses, core-courses, and general education courses are some of the terms which have been applied to the program which tends to cut across the traditional subject fields.

The Core Curriculum. This type of curriculum is common to the experimental schools of the Progressive Education Association. The subject matter included within the core-portion of the curriculum would include the experiences and information with which all students should be familiar. Alberty gives this information about the core-curriculum: (3, page 223)

> In general it may be said to refer to a course, required of all, or nearly all, students, which deals with broad problems or topics without regard to subject-matter lines. It is designed to avoid the evils of compartmentalized subject-matter by dealing with all of the aspects or implications of a problem as a unified whole.

As to what problems should be included in a core course, the curriculum and evaluation staff of the Eight Year Study of the Progressive Education Association formulated the following criteria. The core curriculum should include problems which: (3, page 222-230)

1. Are common to large groups of pupils, if not all.
2. Are persistent or recurring in human experience, or are related to an illustration of such problems. Example: Bond issues.
3. Are not likely to be handled well by traditional subjects. Example: Family relationships.
4. Require or would profit by, cooperative planning, teaching and learning.
5. Call for exploration in several areas of experience. Example: Health hazards in industry.
6. Require orientation in a wide range of relationships and implications for their significance to become apparent. Example: The corporation as related to mass production, labor problems, advertising, etc.

7. Require consideration of various points of view in addition to factual data. Example: Race relations.
8. Require larger blocks of time than conventional periods. Example: Community study and participation.
9. Call for relatively continuous experience rather than a unit course. Example: Experience in the arts.
10. Extend the application of such objectives as techniques of thinking, work habits, study skills, social sensitivity, creativeness, etc. over a wider range of experience than the traditional subjects.
11. Require a minimum of specialized laboratory equipment.
12. Do not require sudden extension or drastic modifications of present levels of work habits and study skills. Example: Sudden shift from lesson learning to complete responsibility.
13. Do not require extended drill in specific skills. Example: Taking three months off for drill in typing, percentage or cabinet making.

From these criteria a number of common elements of core programs may be noted: (1) they provide for experiences common to large groups; (2) they cut across subject-matter lines; (3) they call for cooperative planning and teaching; (4) they require a larger block of time than the ordinary period and (5) they call for exploration of a wide range of relationships. The following are illustrations of problems which seem to meet this criteria and have been developed in some of the progressive experimental schools: "How Does Home Life Affect My Development?", "How Man is Changing His Environment and Adapting Himself to New Conditions," "City Planning," and "Home and Family Life."

Correlation of Subjects. These major problems usually are developed in those subject fields which were first considered "the core". These subjects were social studies, English, mathematics and science. Then the business of the instructors in other subject fields was to relate their instruction to the major problem wherever possible. This curriculum example and variations of it are common to the schools which are experimenting with progressive education.

The curriculum of the secondary school is in need of extensive revision. Our schools have not been preparing the youth of America to meet the present day problems. The progressive education movement is making rapid progress. Schools throughout the country are experimenting with the "new curriculum." The Progressive Education Association is sponsoring many experiments. The most notable of these is the Eight Year Study of the Thirty Schools. Many curriculum changes are being made due to this experiment. Industrial arts is offered in most of the schools in the study. The following chapter will deal with the Eight Year Study and with its relations to a program of industrial arts instruction.

CHAPTER IV

THE EIGHT YEAR STUDY OF THE PROGRESSIVE EDUCATION ASSOCIATION

During the last quarter of a century those ideas and procedures which are commonly called progressive have been used extensively in elementary schools throughout the nation. However, at the secondary school level it has scarcely gone beyond the experimental stage. The reason the secondary school has been slow to respond to the progressive education stimulus has perhaps been due to the college entrance requirements. The Progressive Education Association succeeded in releasing its experimental schools from these requirements, freeing them to develop new ideas and procedures in education which also call for new objectives and methods of evaluating their progress.

PART A

THE ORIGIN OF THE PLAN

In 1933, the teachers in a group of thirty secondary schools undertook an experimental study, on the assumption that college entrance requirements were a restrictive force, making it difficult and at times impossible for schools to give each student the program which was best for him. These instructors sought to show that secondary education could be improved if college entrance restrictions were removed. To this end the Progressive Education Association established the Commission on Relation of School and College. This commission sought the consent of colleges and universities to a plan whereby the graduates of a small number of selected secondary schools would be freed from college entrance requirements. The terms of agreement applied to the graduating classes of

of 1936 to 1940, inclusive. (7, page 1)

The Plan Proposed. The proposals which were submitted to several hundred colleges in 1932 by the commission, reflected the objectives of the experiment. Some of these proposals were: (2, page 209)

> The commission desires to bring about such changes in the relation of school and college as will permit sound experimental study of secondary education. It is concerned with all students, but especially with those who plan to go to college, and it seeks to establish conditions under which schools may develop more fully in all students a strong sense of individual and social responsibility. The commission wishes, also, to make it possible for schools and colleges to help each student shape his course so that it will be best fitted to his needs, and so that his work will have meaning and significance for him.
>
> The educational emphasis in this plan is based upon a conviction that the secondary schools must become more effective in helping young people to develop the insight, the powers and the self-direction necessary for resourceful and constructive living. We wish to work toward a type of secondary education which will be flexible, responsive to changing needs, and clearly based upon an understanding of the qualities needed in adult life.
>
> We are trying to develop students who regard education as an enduring quest for meanings rather than credit accumulation; who desire to investigate, follow the leadings of a subject, to explore new fields of thought; knowing how to budget time, to read well, to use sources of knowledge effectively and who are experienced in fulfilling obligations which come with membership in the school or college community.
>
> To this end we should like to provide, more fully than the present organization of secondary education permits, for changes such as are indicated under the following headings:
>
> 1. Greater mastery in learning.
> 2. More continuity of learning.
> 3. Release of creative energies.
> 4. Clearer understanding of the problems of our civilization.
> 5. Development of a sense of social responsibility.
> 6. Revision of curriculum materials.
> 7. Guidance of students.

More than three hundred colleges and universities gave official approval of the plan and assurance of cooperation. Included in the list are leading representatives of all types of institutions of higher learning and all sections of the country were well represented. (33, page 1)

The Schools Selected for the Experiment. Out of a list of approximately two hundred fifty schools, thirty schools were chosen. An analysis of the list of the schools which were chosen will show that many different types of schools have been included. A list of schools truly representative of the whole range of secondary education was desired, if possible. The following schools were chosen to participate in the Eight Year Study of the Progressive Education Association.

1. Altoona Senior High School------Altoona, Pennsylvania
2. Baldwin School----------Bryn Mawr, Pennsylvania
3. Beaver County Day School--------Chestnut Hill, Massachusetts
4. Bronxville Senior High School----Bronxville, New York
5. Central High School----------Tulsa, Oklahoma
6. Cheltenham Township High School--Elkins Park, Pennsylvania
7. Dalton Schools----------New York City, New York
8. Denver High Schools----------Denver, Colorado
9. Eagle Rock High School----------Los Angeles, California
10. Fieldston School----------New York City, New York
11. Francis W. Parker School--------Chicago, Illinois
12. Friends' Central----------Overbrook, Pennsylvania
13. George School----------George School Pennsylvania
14. Germantown Friends School--------Germantown, Pennsylvania
15. Horace Mann School for Girls-----New York City, New York
16. John Burroughs School----------Clayton, Missouri
17. Lincoln School----------New York City, New York
18. Milton Academy----------Milton, Massachusetts
19. New Trier Township High School---Winnetka, Illinois
20. North Shore Country Day School---Winnetka, Illinois
21. Radnor High School----------Wayne, Pennsylvania
22. Shaker High School----------Shaker Heights, Ohio
23. Roosevelt High School----------Des Moines, Iowa
24. Tower Hill School----------Wilmington, Delaware
25. University High School----------Chicago, Illinois
26. University High School----------Oakland, California
27. University High School----------Columbus, Ohio
28. Winsor School----------Boston, Massachusetts
29. Wisconsin High School----------Madison, Wisconsin
30. Pelham Memorial High School------Pelham, New York

These schools began their curriculum experiment in September, 1933. Each school was free to develop its own plan of work and to decide for itself what changes should be made in its curriculum, organization, and procedure. Each school was free to develop a curriculum based on the philosophy of progressive education. (Chapter III of this study)

Administrative Changes. This is the seventh year of the study. Each year approximately twelve hundred students from the thirty schools enter college. Many changes have been made in these schools. The following statements indicate the nature of the changes which have taken place in the thirty schools of the Eight Year Study. These trends have been discovered through visits to the schools, conferences with the heads of schools and the faculty, and by studying the reports which have been sent in to the Commission on the Relation of School and College. These administrative changes are: (13, page 26-29)

1. The heads of schools have become more and more concerned with the major problems of education.
2. Teachers are participating more fully. Cooperation with administrators and each other is noted.
3. Artificial barriers between subjects and teachers are being removed.
4. Greater continuity of teacher and student relationship.
5. Provision for more complete and effective study of individual students.
6. Providing more opportunities for individuals to follow lines of special interest.
7. Greater use of the community, in the school and out of the school.
8. There is a tendency to lengthen the school day, to make the program of the day more flexible, with longer uninterrupted periods.
9. Friendlier relations between school administration and the colleges.
10. Development of a comprehensive evaluation plan in relation to the purposes of the schools.

From these changes which have taken place in the experimental schools, the spirit of cooperation and working together of the teachers is noted. The administration is assuming a new position in achieving educational goals, and a general spirit of cooperation of teachers, administrators and the colleges is evidenced in the planning of the educational program.

Curriculum Changes. Each school has tried to determine for itself what its major purposes are and each department of the school has attempted to relate its aims to the major purposes of the school. The chief curriculum changes thus far in the Eight Year Study, according to the commission are: (13, page 28)

> 1. There is greater emphasis upon contemporary civilization, especially our own.
> 2. Greater continuity of student experience in several fields of work.
> 3. The most marked change in curriculum organization is in the direction of integration of subjects.
> 4. Many of the schools are developing unified or core courses which evolve from the school's study of the needs of young people.
> 5. There is the elimination of content of doubtful value from the traditional subjects and the substitution of new content which seems to be more significant.
> 6. All of the schools are stimulating the creative impulses of pupils and giving more opportunity for expression in various forms.

This list of changes which have taken place in the curricula gives evidence of the breaking down of the old subject matter lines. There is a general reorganization of subject matter which has resulted in the elimination of some and the addition of new material.

Changes in Method of Teaching. (13, page 28) Similarly many significant changes have been effected in teaching procedure. Some of the more spectacular are:

1. The pupils are taking a larger share in planning individual and group work.
2. There is decidedly more investigation by the pupil.
3. The division between study and recitation is disappearing.

Importance of These Changes. The responsibility of the instructor is understood to be that of leadership, stimulation, and guidance of the student in his work. These changes which have been made in the Thirty Schools of the Eight Year Study make a new testing and appraisal program necessary.

PART II

EVALUATION IN THE EIGHT YEAR STUDY

The measurement program in the progressive education experiments has assumed a new significance. It is called "Evaluation" because it is attempting to do more than did the test and measurement programs of the past. It is endeavoring to measure or evaluate the effect the curriculum experiences are having upon the student; the changes which are taking place in the total growing personality of the student. The purpose of the evaluation program in the Eight Year Study has been described by Tyler as follows: (27, page 72)

> To develop procedures by which we may determine the changes taking place in these boys and girls and thereby enable each school to discover year by year the degree to which it is accomplishing its significant educational purposes.

From this statement of the purposes of evaluation many new factors are to be involved in measuring the effectiveness of the program. Many test and measurement devices which are already in existence will be useful, but for many of the phases of student development, new measuring instruments and other means of evaluation will have to be worked out. Tyler makes the following suggestions concerning the development of an evaluation program. (26, page 452)

> The difficulties involved in developing a practicable program of evaluation can be overcome. By making the appraisal an integral part of the learning process, by encouraging the pupil to make his own evaluations, which throw light upon the pupils' development in several directions, and by employing indexes of pupil development at those points where the collection of direct evidence is highly impracticable, a comprehensive program of appraisal which is also practicable can be developed.

From this statement the fact is noted that the testing program is to be a part of the learning process rather than separate from it. This kind of an evaluation program calls for many new developments.

New needs in evaluation growing from progressive education practices in the Eight Year Study have created demands for new tests. These new tests, designed to measure new values and objectives show some major tendencies. Some of these tendencies according to Tyler are: (26, page 407)

> 1. They are built upon a fundamental analysis of pupil activities and the curriculum. They are constructed in terms of behavior units and changes in children and not, as in previous tests, from samples of the content in various courses of study or subject matter in the text book.
> 2. The new tests disregard and cut across the conventional subject matter lines so as to include in one test of the measurement of functional pupil behavior, such materials as are usually found in the subjects of reading, arithmetic, english, social studies, and natural sciences.

The technique of test construction used by the evaluation committee of the Eight Year Study is said by Tyler to involve the following ten steps: (28, page 5)

1. Formulation of course objectives.
2. Definition of each objective in terms of student behavior.
3. Collection of situations in which students will reveal presence or absence of each objective.
4. Presentation of situations to students.
5. Evaluation of student reactions in light of each objective.
6. Determination of objectivity of evaluation.
7. Improvement of objectivity, when necessary.
8. Determination of reliability.
9. Improvement of reliability, when necessary.
10. Development of more practicable methods of measurement, when necessary.

New devices which have been developed for use in the Eight Year Study cover the following eight large areas: (1) functional information; (2) aspects of thinking; (3) attitudes; (4) interests, aims, purposes, and appreciations; (5) study skills and work habits; (6) social adjustment and social sensitivity; (7) creativeness; and (8) functional social philosophy.

This information concerning the student is very desireable and is of utmost importance and service to the guidance officers, the principal, teachers, pupils parents, and society in general. To carry on this sort of evaluation calls for individual records for each student, of the personal observations of the instructors who come in contact with the student. Evaluation becomes a continuous process. It is most vitally concerned with the study of the child himself as a growing, developing personality. The evaluation program is in harmony with the organismic approach to life and education. It makes the study of the total growing personality its major objective.

PART III

THE INDUSTRIAL ARTS AND GENERAL EDUCATION OBJECTIVES OF THE TULSA PUBLIC SCHOOLS AS FORMULATED UNDER THE STIMULUS OF THE EIGHT YEAR STUDY

At the outset of the Eight Year Study each participating school formulated its own set of objectives. Throughout the entire list of schools there was found to be a great deal of similarity in these newly formed aims. They cover the general field of knowledge and skills which, it is believed, should be common to all who live in a democracy.

As a participant in the Eight Year Study, the Tulsa Public Schools, in which the writer is a member of the faculty, formulated a new set of general education objectives. (Appendix B) The industrial arts objectives were also re-written. (Appendix A). By comparing the objectives of general education and industrial arts, there would be brought out the degree to which the two sets of objectives are complementary and harmonious. This should indicate the extent to which general education and industrial arts programs are working toward the same or similar desired changes in the students. The relationships of industrial arts to the general education objectives are shown in the following comparative analysis of the objectives of industrial arts and general education in the Tulsa Public Schools.

Complementary Relationships of Tulsa Industrial Arts Objectives to the Tulsa General Education Objectives.

General Education Objectives (See Appendix B)	Industrial Arts Objectives (See Appendix A)
I-I. Develop in pupils the ability to recognize and respect the rights of others	X. To contribute to the development of leadership by giving the boy an opportunity to assume responsibility in the shop.
I-J. Develop in him the ability to assume leadership and to recognize and be willing to respect and follow sound leadership.	
II-E. To provide experiences which will direct the pupil into such lines of endeavor as are compatible with his abilities, aptitudes and interests.	II. To provide exploratory experiences in several representative occupations for the development of interests and the discovery of aptitudes.
II-D. Help the pupil to develop into a poised, self-disciplined and resourceful individual.	IX. To contribute toward the development of self-confidence through having successfully completed a shop project.
	XII. To train in skills and abilities technically correct which may serve as a foundation for later vocational training.
II-C. Furnish opportunities for creative participation in vocational, recreational and spiritual activities which will recognize and develop the needs, interests, abilities, and aptitudes of the individual pupil.	

		XIII.	To develop a health and safety consciousness in relation to manufacturing conditions and the general use of tools and machines.
II-B.	Be of such nature as to give the pupil an understanding of himself and to foster the development of physical and mental health.	IV.	To develop mental and physical coordination through the use of hand tools, machines, and materials.
I-M.	Develop in pupils the ability to think critically and independently.	Major.	The major objective of the junior high school manual arts is to develop habits of thinking in terms of material things through analyzing, planning, and performing mechanical tasks within the ability and interest of the student.

In consideration of the above comparison, it is the conclusion of the writer that the objectives of the industrial arts department of the Tulsa Secondary School, harmonize with the objectives of the Tulsa General Education program to the extent that there is general agreement in the desired outcomes; that both programs are working in more or less the same general direction toward the same objectives; that the degree of agreement is high enough to support the belief that industrial arts can contribute in a large measure to the general education program, in a progressive education center.

Much comment has been made as to the place industrial arts should have in general education. Some educational leaders would have industrial arts as a core subject, while others would use it only as an elective

special field of learning, outside of the general education plan. The following chapter deals with industrial arts as a factor in general education.

CHAPTER V

INDUSTRIAL ARTS AS AN INTEGRAL PART OF GENERAL EDUCATION

Industrial arts is a part of general education. An analysis of the philosophy and objectives of industrial arts will reveal that they are quite in line with the philosophy and objectives of the progressive education movement. Therefore, industrial arts cannot be held in contrast with the general education program as if it were separate and different, but it must be treated as a part of the common educative opportunities which are available to all boys and girls.

Recent literature contains many articles by educational leaders concerning industrial arts as a factor in general education. These comments should give a representative cross-section of the thinking of leaders in the field of both industrial arts and general education.

Industrial arts provides an area of learning through which boys and girls may develop an ability to express themselves through construction; may attain personal growth and may understand better the industrial society in which they must soon take an active part.

The progressive educational belief that in the school there should be provided full opportunity for initiative and self-expression, together with an environment rich in interesting materials, is inherent to industrial arts. Roy L. Soules makes this comment concerning the characteristics of industrial arts: (22, page 45)

> . . . In so far as the child may find avenues for self-expression through manipulation of materials, he is experiencing values to which the industrial arts can make especially valuable contributions. The arts and crafts, through opportunities to work with woods, metals, plastics, clays, reed, textiles, chemicals, etc., open to boys and girls an almost unlimited range of outlets for personal expression of interests and talents. This chance to experience, react, conceive, plan, and create with material things is a peculiar characteristic of industrial arts.
> . . . . . .

This statement also points out other characteristics of industrial arts which are directly in line with the thinking of progressive educational leaders.

Concerning the criticism which has been handed the secondary school with the subject-matter curriculum and as to what to do about it, Moffitt (3, page 7) believes that industrial arts can play an important part.

> It is of the substance of the 'learning by doing' which some philosophers feel is the answer to many of the problems in education. It has the seeds of the cultural inheritance of the past, yet it partakes of the significant method. It is vital and alive. It is practical.

An educational program following the belief that there should be freedom for the student to develop naturally with interest as the motive of all work has a prominent place for industrial arts in its curriculum arrangement. Where in the school can the students make any better contact with the world and its activities and make use of the experience thus gained, than in industrial arts activities? Where can the student better satisfy and develop interest through the consciousness of achievement than in the industrial arts shop?

There are so many ways in which industrial arts can contribute and serve as an integrating element in the general education curriculum.

Schmidt (19, page 10) makes the following statement concerning the contribution which industrial arts can make to general education:

> It may be safely said that the industrial arts contribute, or at least may contribute, to the artistic expression of the child; that it is an important integrating element in the study of mathematics; that it is an outlet for practical science and engineering; that it is a factor and an important one, in a study of industrial relations; that it is a part of the study of economics; that it plays a specific role in the study of geography and industry as a whole; that it is a contributing element to self-expression along the lines of vocations aside from its vocational aspect; that it represents a kaleidoscope picture in the study of vocations and is a factor in guidance; that it also is an integrating subject in covering a large variety of skills per se; that it possesses elements which go to make for a better understanding of both the producer's and consumer's relations with society at large; that it is an important factor in the relationship of acpital and industry; and that it is most important in fostering the imagination and in furnishing an outlet for the creative impulses.

Where in any secondary school curriculum can there be found a wider or more vital variety of education of youth of America? From this it can be readily seen that industrial arts can be vitally important in integrating the student with the school, the community, and the democratic society.

From the social point of view it is readily conceded that each individual should learn how to make the most of his capacities in order that he may contribute to the betterment of life and effectively participate in a democratic society.

F. T. Struck makes the following comments concerning industrial arts as a contributing factor in this direction: (23, page 592)

. . . . . .

> Discriminating thinking is an essential ingredient of the integrated personality. Industrial arts experiences are rich in thought provoking situations. Creative expression is another necessary element . . .
>
> Another factor in integration is cooperative interacting. Where may one find a setting that is more natural and conducive to developing attitudes and habits of mutual helpfulness and cooperation than through industrial arts activities?
>
> The typical industrial arts shop, guided by an integration conscious teacher, is first and foremost a little democratic community in which self-government, self-adjustment, and self-development are recognized as important goals.

An educational program, having as a part of its philosophy, training for the most effective participation in a democratic society surely would not fail to include the above mentioned learning situations.

Industrial arts plays a part in the development and integration of the personality. Homer J. Smith makes the following comment in relation to this: (21, page 180)

> In a democratic society, the concept of a 'liberal education' must include experience with materials and construction processes. The history and economics involved will add richly to the cultural content of all shop and laboratory courses. Any course which embraces constructive thinking, feelings of satisfaction and worthwhile achievement, and actual manipulation of materials is educational in the psychological sense and makes for integration of personality because the childs' organism is behaving as a whole.
>
> . . . . . .

This comment points to the fact that industrial arts activities, employ the whole child. The organismic psychological basis on which progressive education has developed, is also a basic psychology in industrial arts.

To the development of a well rounded, well balanced human being, D. M. Schwieckhard points out these values in industrial arts: (20, page 267)

> By way of glimpses into the future, we may predict that industrial arts can continue to function in a still greater way. With its rather sound establishment in the educational system, it can serve to lay the foundation for vocational education. Having been as generally accepted as it has been, it can serve to enrich general education more in the future than it has in the past and help the whole educational system to keep its feet on the ground.
>
> . . . . . .
>
> From the standpoint of the work itself there are numerous opportunities for the discovery of aesthetic values. The appreciation of good design is capable of calling forth the finer qualities in the individual, and an appreciation of its opportunities in relation to other details most surely calls forth the finer characteristics in human nature. Excellent workmanship does fully as much to the heart of the worker as it does in inspiring those who observe it . . . . The thrill of personal accomplishment and visible evidence of it are elements of definite value in the formation of ones character.
>
> . . . Substantial character is not all made by success at the first attempt, but fully as much by improvement arising from attempts which fall short of their goals. This again is a frequent experience in the affairs of the industrial arts shop as one day follows another. The spirit of experimentation is a lure to most boys of adolescent age, and industrial arts work provides frequent and varied opportunity for experimentation in numerous directions.
>
> . . . In the evaluation of industrial arts education, the discovery has been made that it possesses unlimited possibilities in the direction of making a well-rounded and well-balanced human being.

Since the industrial arts courses are naturally related to industrial society, the occupational adjustment aspect of school and community relationship are functions of industrial arts. R. A. Hinderman makes the following comment in behalf of industrial arts in this respect: (5, page 141)

> The problem of relating the school and the community includes helping pupils to understand the community, assisting pupils to develop skills in participating in the community, and aiding individuals in working out plans of occupational adjustment that are possible of accomplishment.

Industrial arts is essential in the modern school curriculum. The values which are afforded in industrial arts are necessary to the development of the student. In support of this belief, Proffitt gives the following reasons: (11, page 234)

> 1. It represents a large field of human activity.
> 2. It relates to fundamental types of human experiences that are universal and consequently makes an appeal to all pupils.
> 3. It is based upon the natural tendency to manipulate material things.
> 4. It provides opportunity for self-expression in concrete media . . . .

Reference has been made concerning the place of industrial arts in progressive education. Some educators fear that industrial arts will be 'fused' out of existence while others think it should be the 'core' subject around which the rest of the curriculum should be built. The comments which have been presented here are typical of the thinking of leaders in industrial arts. They are fairly well representative of the thinking of educational leaders.

As to what will happen to the industrial arts program in general education, Claude E. Nihart makes the following comment concerning current developments: (9, page 93)

> In conclusion, may I state that we in California are determined to retain the practical values of the industrial arts program.

> We have not discarded the idea of craftsmanship. We are participating in the progressive education movement, but this participation is not diluting our industrial arts program.

Industrial arts is a part of general education. The educational values which are realized in industrial arts cannot be neglected as a part of the integrated experience of each student. It is offered as an area of learning in most of the participating schools of the Eight Year Study. What types of industrial arts programs are being offered within these schools? The answer to this question should show some indication as to the place of this subject in progressive education. Chapter VI will be devoted to a survey of industrial arts in a representative number of the schools of the Eight Year Study.

CHAPTER VI

A SURVEY OF THE STATUS OF INDUSTRIAL ARTS IN THE EIGHT YEAR STUDY OF THE PROGRESSIVE EDUCATION ASSOCIATION

In the attempt to develop progressive educational practices and procedures on the secondary school level, the Eight Year Study of the Progressive Education Association was launched in 1933. Chapter four of this report relates the nature of this experiment and points out the general trend of change which has come about in the participating schools due to the stimulus of progressive education. Industrial arts is offered as an area of learning in most of these schools and it too has undergone changes along with the other subject fields.

PART A

THE SURVEY

An attempt has been made by the writer to collect information concerning the changes which have been made in industrial arts and its present status in the Eight Year Study of the Progressive Education Association. This information should have a direct bearing upon tentatively determining the place of industrial arts in progressive education.

Two questionnaires were used in carrying out the research of this study. No information was available in regard to the Industrial Arts courses offered in the Thirty Schools of the Eight Year Study; the names of the department heads; names of the instructors or directors who were in charge of all of the departments where several schools in the larger systems were taking part in this experiment. Card

questionnaires were sent out in quest of this information, then followed the mimeographed questionnaires concerning the industrial arts programs of these schools.

Postal Card Questionnaires. The postal card questionnaires (Appendix C) were sent out to the principals of each of the Thirty Schools. The information collected from the returns are shown in Table I.

Origin of the Mimeographed Questionnaire. All points on which information was desired were organized by the writer. From this group of points, questions were framed which the writer believed would secure the desired information from the recipients. These questions were then grouped and worked into a questionnaire. A copy was then referred to Mr. O. B. Badger, Director of Industrial Education of the Tulsa Public Schools, for his criticism. Revisions were made following his suggestions. A revised copy was then submitted to Dr. DeWitt Hunt, Head of the Department of Industrial Arts Education and Engineering Shop Work at Oklahoma Agricultural and Mechanical College. After receiving Dr. Hunt's approval of the questionnaires, they were then duplicated and prepared for mailing to the progressive education schools.

Mailing the Questionnaires. The questionnaires were sent to the directors of industrial education in the large city school systems which were participating in the Eight Year Study. In the smaller schools the questionnaires were sent to the head of the department within the experimental school. In the few cases where there was only one or two

industrial arts instructors, with no one acting as the head of the department, the questionnaires were sent to one of the instructors.

The Questionnaire Returned. Copies of the mimeographed questionnaire (Appendix B) were sent to twenty-two of the secondary schools of the Eight Year Study, which, according to the returns of the postal card questionnaire, offered industrial arts as an area of learning. Sixteen of these schools responded to the inquiry. Fourteen of those responding returned the questionnaires with the answers checked. Two of the schools reported having industrial arts programs which were outside of the progressive education curriculum in their respective schools, therefore, their programs were not being affected by the progressive education experiment. This chapter is devoted to the information, which was received from the fourteen schools responding to the questionnaires, concerning industrial arts in progressive education.

Table II contains the information received in response to the postal card questionnaires (Appendix C). This information shows that seven of the experimental school systems of the Eight Year Study have directors of industrial education; two schools have department heads; the number of teachers range from one to nine in the schools under study; two schools do not offer industrial arts and no reports were received from six of the schools. This table also shows that eleven of the schools of the Eight Year Study are Public Schools; seventeen are private; three are private boys schools; three are private girls schools and twenty-one are coeducational. This table shows that three of the

TABLE I

SCHOOLS RESPONDING TO THE QUESTIONNAIRES

School	Grades	Kind and Type of School	Total Enrollment
1. Altoona High School Altoona, Pa.	8-12	Jr. & Sr. H.S. Public	300
5. Bronxville H.S. Bronxville, N.Y.	7-12	Jr. & Sr. H.S. Public	1600 1800
8. Denver Schools Denver, Colorado	7-12	Jr. & Sr. H.S. Public	900 2800
10. Fieldston School New York	1-12	Jr. & Sr. H.S. Private	1000
12. Friends Central Overbrook, Pa.	7-9	Jr. H.S. Private (Quaker)	45
13. George School George School, Pa.	9-12	Sr. H.S. Private	375
14. Germantown Friends Philadelphia, Pa.	7-12	Jr. & Sr. H.S. Private	600
16. John Burroughs School Clayton, Missouri	7-12	Jr. & Sr. H.S. Private	315
17. Lincoln School New York City	7-12	Jr. & Sr. H.S. Private	600
22. Shaker High School Cleveland, Ohio	10-12	Sr. H.S. Public	160
25. University High School Chicago, Illinois	7-10	Jr. H.S. Private	300
26. University High School Oakland, California	10-12	Sr. H.S. Public	2000
27. University High School Columbus, Ohio	7-12	Jr. & Sr. H.S. Demonstration	350
29. Wisconsin High School Madison, Wisconsin	7-12	Jr. & Sr. H.S. Public	

TABLE II

THE TYPE OF SCHOOLS AND THE INDUSTRIAL ARTS PERSONNEL IN THE EIGHT YEAR STUDY

OF THE PROGRESSIVE EDUCATION ASSOCIATION

	SCHOOLS OF THE EIGHT YEAR STUDY																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	Total
Schools having a city director	*					*		*	*					*									*			*				7
Schools having a department head																			*								*			2
Number of Industrial Arts instructors	9				2	3		2	6	2			4	3	4	1	2		8	2	2	1	3	2	2	4	2			65
Schools not offering Industrial Arts												*						*												2
Schools from which no reports were received		*	*	*			*				*																		*	6
Coeducational	*		*	*	*			*	*	*	*	*	*			*	*			*	*	*	*	*	*	*	*		*	21
Girls School		*					*																					*		3
Boys School														*	*			*												3
Public Schools	*		*	*		*		*	*												*	*	*			*			*	11
Private Schools		*	*				*			*	*	*	*	*	*	*	*	*		*				*	*		*	*		17

six schools from which reports to the questionnaires were not received were private girls schools. Two of these six schools were private coeducational and one was a public coeducational school.

In choosing schools which were to take part in the Eight Year Study, the Progressive Education Association attempted to select a representative cross-section of the American secondary school. The list of schools from whom usable questionnaires were received is shown in Table I. These schools are also representative of the Thirty Schools of the Eight Year Study. A wide range in the size of the schools is noted with the total enrollment varying from 45 to 2,800. Several types of schools are found among the list, including: private schools for boys, private coeducational schools, public high schools, and university demonstration or practice schools. These schools are located in practically all major sections of the country.

Tulsa Industrial Arts Objectives Compared With the Progressive Education Objectives of the Schools in the Eight Year Study. At the outset of the Eight Year Study, each of the participating secondary schools formulated a new set of objectives. Part three of Chapter IV of this report has already shown the general agreement and harmony between the progressive and industrial arts objectives of the Tulsa Public Secondary Schools. (Appendix B) All junior and senior high schools in Tulsa are participating in the Eight Year Study. This same set of industrial arts objectives was submitted to the schools being studied in this survey for the purpose of making a similar comparison with the progressive education objectives of the other schools. Table III shows the results of this comparison.

THE DEGREE OF AGREEMENT OF THE TULSA INDUSTRIAL ARTS OBJECTIVES WITH THE PROGRESSIVE EDUCATION OBJECTIVES OF THE SCHOOLS OF THE EIGHT YEAR STUDY

Tulsa Industrial Arts Objectives	The Schools of the Eight Year Study which took part in this survey.															
Agreement With	1	5	8	10	12	13	14	16	17	22	25	26	27	29	Av.	Rank
Major Objective Scientific Thinking	2	3	1	1	1	1	3	2	2	1	2	1	1	2	1.64	6
1. Give meaning to academic knowledge	2	2	1	1	4		4	2	3	2	3	3	1		2.33	9
2. Exploratory experience	1	1	1	1	4	3	4	1	3	1	3	3	5	2	2.35	10
3. Exercise creative urge	2	1	1	1	2	2	1	1	2	1	2	1	1	1	1.35	1
4. Develop mental and physical coordination	2	4	5	1	1	1	3	1	3	1	2	1	1	1	1.92	7
5. Activity with appeal to interest of boys	3	1	1	1	1	2	3	1	2	1	2	1	1	1	1.50	3
6. Avocational interests	2	1	1	1	2	1	1	1	2	1	4	1	1	1	1.42	2
7. Consumer knowledge	1	1	4	1	3	2	4	1	3	1	2	2	4	1	2.14	7
8. Understanding toward industrial pursuits	1	2	2	1	3	3	5	1	2	1	2	1	5	1	2.14	7
9. Develop self-confidence	2	3	1	1	1	2	4	1	2	1	2	1	1	1	1.64	6
10. Develop Ladership	4	1	2	1	3	2	4	1	2	1	2	3	3	1	2.14	7
11. Handy man abilities	2	1	4	3	3	1	3	2	4	1	3	1	5	1	2.42	11
12. Vocational foundation	1	3	3	1	2	2	4	2	4	2	3	1	5	4	2.64	12
13. Safety consciousness	2	1	3	1	4	3	4	1	2	1	2	1	5	2	2.21	8
14. Knowledge of good workmanship	1	1	3	1	2		2	1	2	1	2	1	3	1	1.61	5
15. Ability to meet unfamiliar situations	2	1	1	1	2	3	3	1	2	1	2	1	1	1	1.57	4

1 - Entire agreement; 2 - reasonably close; 3 - about 50%; 4 - Little; 5 - No agreement.

Examination of the information presented in Table III shows that the average of agreement for each of the objectives covers a range from 2.64 which is about fifty percent agreement to 1.35 which is close agreement. This also shows that the average agreement of the entire set of objectives is 2.06 which indicates that this set of industrial arts objectives is in general agreement with the objectives of the progressive education schools in the Eight Year Study. From this information, it is the belief of the writer that a program of industrial arts, operating under such a set of objectives as has been presented here, will contribute in a large measure to the fulfillment of the desired outcomes of the progressive education secondary schools.

The Industrial Arts objectives of a department in a progressive education school should harmonize with the general objectives of the school. It is to be noted from an examination of Table III, that teachers of industrial arts in the fourteen progressive education schools do not consider the vocational values of the work as being of very great importance.

The Objectives Ranked According to Emphasis. According to the average of the points assigned to each of the objectives by these fourteen teachers, the emphasis would be placed on these desired outcomes as follows, beginning with the objectives which ranked the highest.

1. Exercise creative urge
2. Avocational interests
3. Activity with appeal to interest boys
4. Ability to meet unfamiliar situations
5. Knowledge of good workmanship
6. Major objective: Scientific thinking
7. Develop mental and physical coordination

Conumser knowledge
Understanding toward industrial pursuits
Develop leadership

8. Safety consciousness
9. Give meaning to academic knowledge
10. Exploratory experience
11. Handy man abilities.
12. Vocational foundation

From this ranking it is noted that such values as, exercise of creative urge, activity with appeal to the boy and avocational interests are ranked at the top and such values as vocational guidance and safety consciousness are ranked lower in importance.

General Expressions Concerning the Agreement of the Industrial Arts and Progressive Education Objectives. The industrial arts instructors and directors made the following comments concerning their estimation of the general agreement of the industrial arts objectives to the progressive education objectives of the schools with which they are connected.

> The objectives (industrial arts) are excellent, but are not all followed at Fieldston because of special conditions.
>
> More agreement than disagreement.
>
> I should say these objectives agree very well with the fundamental purposes held by Progressive Education Association.
>
> These objectives agree very well with the objectives which dominate the industrial arts woodworking program with which I am working.
>
> The above objectives are closer to the objectives of the Progressive Education Association than any I have seen.
>
> These objectives fit in very well with the objectives of Progressive Education Association. We do, however, place great stress on "thinking and doing" and on attitudes.
>
> Our major objective is expressed in number three and number six in the minor objective column.
>
> In accordance with the Progressive Education Objectives.
>
> There seems to be a compromise between your newer beliefs and some rather out moded objectives. For instance, objective

> four is not in harmony with our present concept of the "whole person", which receives such emphasis in progressive education.
>
> Objective seven can never be of much influence in educational procedures until it can be proven that teachers themselves are exceptionally intelligent consumers, which evidence to date would not substantiate.
>
> Object eleven gave impetus to the home mechanics course which have turned out to be such "flops", principally because they ignored some fundamental tenets of progressive education.
>
> At the risk of seeming to labor the point, I don't believe your objectives, or any other such list, will have much influence in improving instruction. They do not differ radically from those we have always pretended direct our teaching.

From the expressions given by nine of the instructors and directors concerning the industrial arts and progressive education objectives, eight of the responses indicated that there was general agreement between the industrial arts objectives and the progressive education objectives of their schools. While one expressed his belief that the listing of a set of objectives was not the progressive education method of using goals.

Previous Industrial Arts Offerings. The industrial arts offerings of the schools of the Eight Year Study, which took part in this survey are shown in Table IV. An examination of these offerings and of the present industrial arts subjects should reveal the trend of the change which has been made in these schools.

The industrial arts subjects which were offered in the progressive schools under consideration before the beginning of the Eight Year Study were common to the average industrial arts program. Since then some changes have been made in the courses offered in the schools.

By examining the changes made in industrial arts in the light of the old courses offered, the extent to which the subject offerings are being changes can more readily be determined.

TABLE IV

INDUSTRIAL ARTS BEFORE THE EIGHT YEAR STUDY

Industrial Arts Courses Offered Before The Beginning of The Eight Year Study	Schools having Set Course	Schools Having No Set Course
Applied Design	1	6
Art Metal Work	3	6
Auto Mechanics	2	4
Bench Metal Work	3	5
Electrical Work	3	6
Foundry	1	5
Machine Shop Practice	3	5
Mechanical Drawing	9	3
Ornamental Iron Work		5
Plumbing	1	
Printing	2	
Sheet Metal Work	2	5
Woodwork	5	7

New Materials Introduced. The following new materials were reported to have been added to the various programs of the schools participating in this survey:

1. Alabaster
2. Aluminum
3. Alloys
4. Brass
5. Clay
6. Copper
7. Cork
8. Glazing Materials
9. Gold
10. Keen cement
11. Leather
12. Metals (semi-precious)
13. Plywood
14. Plastics
15. Plaster of Paris
16. Paper (wrapping)
17. Quick dry enamels
18. Raffa
19. Silver
20. Tile
21. Textiles
22. Water Colors

These are all industrial arts materials, some of which are common to the shop programs while others are relatively new. Their addition would tend to enrich the industrial arts.

Activities Introduced. Some new activities were reported to have been added to the industrial arts programs in the various schools. Some of these are new to industrial arts while others are very common. Following is the added list of new activities:

1. Art metalwork
2. Alabaster carving
3. Clay casting
4. Aluminum, brass and copper tooling
5. Electrical work
6. Telescope grinding
7. Jewelry
8. Marquetry
9. Metal leafing
10. Pewter spinning
11. Puppetry
12. Radio
13. Tin smithing
14. Wood carving
15. Wrought iron work

Examination of these materials and activities which have been added since the beginning of the Eight Year Study reveals that in most cases they are of a more artistic type than that which is generally found in industrial arts. However, they may all be classed as industrial arts activities and materials. The addition of such activities would make for a better program, in that the objectives which have been validated by the respondents will be achieved more readily.

Miscellaneous Changes in Industrial Arts. Along with the listed changes which have just been discussed, the schools reporting in answer to the set of questions, listed the following other changes:

1. Availability of material for student use.
2. Storage of tools in small cabinets.
3. More machine tools.
4. Greater freedom in use of hand tools and machines.
5. Power jig saw added.
6. Some additional hand tools.
7. More materials.
8. Less cabinet making
9. Less sheet metal.

10. Greater freedom in choice of projects.
11. Architectural drawing taught from the standpoint of the home owner.
12. Full-time instruction in elementary industrial arts.
13. Core groups in industrial arts.
14. Boys and girls in same classes.
15. Larger classes.
16. Different objectives.
17. Greater potential and staff cooperation.
18. Greater utilization of community resources.
19. Core courses in all arts areas: fine, industrial and home economics.

The industrial arts instructor is familiar with most of the above changes. Many of these changes have taken place in the programs through the ordinary course of events.

Methods of Teaching. The information in Table V was received from the experimental schools, concerning the changes in the method of instruction, under progressive education.

Examination of the information given in Table V shows a gradual adoption of the individual method of instruction and a general movement away from the group method. The schools on which reports have been made have relatively small shop classes, which makes possible more use of the individual method of instruction.

Time Devoted to Industrial Arts. If industrial arts is becoming less popular in the schools under the progressive plan, there should be

some indication of a change in the amount of time devoted to this subject. Table VI contains information on the amount of time given to industrial arts in the progressive schools under consideration.

TABLE V

CHANGES IN METHOD OF INSTRUCTION

School	Individual Instruction	Group Instruction	Other Changes
1	All Individual		
5	3/4 Individual	1/4 of time	
8	Gradual Adoption	Less frequent	
12	More than before		
14			Shop major courses instituted
16	Almost entirely		
17	Largely in classes of 12 to 20	Only when need arises	
22	Individual	Group	
23.....	No change		
25	More		
27	Much more	In terms of long term reponsibility	
29	More individual instruction	Discussion groups on problems observed on visits, etc.	
10	Individual for years	Going back to some group instruction	

The information given in Table VI shows that in the progressive

education experimental schools answering the questions, there has been a gain in time devoted to industrial arts.

TABLE VI

TIME DEVOTED TO INDUSTRIAL ARTS

Additional Time Devoted to Industrial Arts	No Change in Time Devoted to Industrial Arts	Less Time Devoted to Industrial Arts
8 schools	6 schools	None

Industrial Arts as a Free Activity. In some of the progressive education schools, industrial arts is being used as an activity program where the student does not follow any course of study or receive any formal training. The schools included in this report gave the following information in this respect.

TABLE VII

INDUSTRIAL ARTS: AN ACTIVITY OR FOR CAREFUL THOUGHTFUL WORK

The Shop is a Place Where Students May Go For:	Yes	No
An activity period	3 schools	
Careful thoughtful work		7 schools
Both	5 schools	

Many of the industrial arts departments of the schools which are carrying on experiments with progressive education have opened up their

shops for one class period of the day to any students who wish to come into the shop and work. Evidence that this is practiced in the schools which participated in this survey is shown in Table VIII.

TABLE VIII

SHOPS OPEN FOR ONE PERIOD TO ALL STUDENTS

	Yes	No
Free period when shops are open to any students who may wish to come in and work.	9 schools	4 schools

Due to the fact that more freedom to use machines and other power equipment is allowed the students in the shops of the progressive education schools, and due to the use of the shops as an activity period, open to all students, regardless of experience, there arises a situation in which it seems that more accidents would be possible.

TABLE IX

ACCIDENTS UNDER THE PROGRESSIVE PLAN

	More	Fewer	No Change
Amounts of accidents under the progressive plan in the shops.	None	2 schools	12 schools

The reports listed in Table IX show that the number of accidents have not increased in the industrial arts shops of the progressive education

schools under study in this survey. The reason for fewer accidents under the progressive education plan perhaps could be partially attributed to the fact that smaller projects are being constructed in the industrial arts shops of these schools, which would probably reduce the use of power machinery and call for more hand work.

Teacher Energy Required under the Progressive Education Plan. In the traditional industrial arts program, it was possible to reduce the teacher energy required through a good shop organization. With more activities being offered in the industrial arts of the progressive schools and with students coming in some periods who are not regularly scheduled, it seems possible that the teacher energy required would increase.

TABLE X

TEACHER ENERGY REQUIRED

Question	More Required	Less Required	No Change
Amount of teacher energy required under the progressive education plan	9 schools	2 schools	2 schools

More teacher energy is reported to be required under the progressive education plan as compared to the previous curriculum of the schools under study in this survey. The increase in energy required may be due, in part, to the fact that the work has become more individual. The increase in the number of activities in which the students may engage, all going on at the same time, would no doubt demand more energy on the part of the instructor.

Class Size. In a well-organized industrial arts shop it is possible for one instructor to manage a fairly large class by using the group method of instruction. The individual method of teaching is taking the place of the group plan in the schools returning the questionnaire, according to the data given in Table V. To use the individual method exclusively it is necessary that the classes be fairly small. The class size of the industrial arts departments on which reports have been made are shown in Table XI.

TABLE XI

AVERAGE TEACHING LOAD PER PERIOD IN INDUSTRIAL ARTS

Average Class Size per period	Schools Reporting											
	1	5	8	10	12	13	16	17	25	26	27	29
Old Program	22	23	30	10	15	35	40		30	24	100*	18
New Program	22	23	30	**	15	20 to 35	8	16	30	24	130	23

* Probably refers to the number of students per day.
** No set class

It will seem that in most of the schools reporting, the teaching load has remained the same. Two of the schools report an increase while two other schools report a decrease in teaching load. In general, it seems that the number of pupils in shop classes in these schools is rather small. Only two schools report classes having more than thirty pupils. The average class size in the Tulsa schools is about thirty-eight students per class.

Student Capacity of Shops. The maximum student capacity of the industrial arts shops on which reports were received is given in Table XII. The student capacity of the previous program is compared to the present student capacity under the progressive education program.

TABLE XII

MAXIMUM STUDENT CAPACITY OF THE INDUSTRIAL ARTS SHOPS

Maximum Student Capacity under:	Schools Reporting												
	1	5	8	10	12	13	14	16	17	25	26	27	29
Previous Program		25	same	25	15	250*	14	20	30	30	150*	24	20
Progressive Program	25	25	same	25	15	75*	14	20	20	25	150*	30	25

* Probably refers to the number of students per day.

The maximum student capacity of the industrial arts shops has remained practically the same as it was before the beginning of the progressive education experiment. Only two schools show a decrease and in two schools an increase is shown. It may be noted that the student capacity of the industrial arts shops in these schools are relatively small. The capacity of the largest shops listed in Table VII is thirty students, with the smallest capable of handling fourteen students. Most of the shops in the Tulsa schools are set up to accomodate as high as forty-five students.

Waste of Materials Under the New Program. Information concerning waste of materials under the progressive education plan as compared to the previous curriculum in the schools of the Eight Year Study is presented in Table XIII.

TABLE XIII

THE WASTE OF MATERIALS UNDER PROGRESSIVE EDUCATION COMPARED TO THAT OF THE PREVIOUS PROGRAM OF INDUSTRIAL ARTS

Waste of materials Greater under:	Schools Reporting													
	1	5	8	12	13	14	16	17	25	26	27	29	Total
Progressive Education	X	No	X					X	X			X	5
Previous Program					X	X	X				X		4
No Change				X						X			2

It appears that there has been an increase in the waste of materials in the industrial arts shops of the schools of the Eight Year Study from which replies were received to the questionnaires. Perhaps it should be expected that there would be an increase in the amount of wasted materials in an industrial arts program in which the students are allowed more freedom to explore and express their own ideas through the medium of materials.

Cost of Supplies. It has been feared that the cost of supplies and equipment would show an unreasonable increase under the progressive education plan. Table XIV shows the status of these costs in the schools surveyed.

TABLE XIV

NET COST OF SUPPLIES AND EQUIPMENT UNDER THE PROGRESSIVE EDUCATION PROGRAM

Cost of Supplies And Equipment under the New Program is	Schools Reporting													
	1	8	10	12	13	16	17	22	25	26	27	29	Total
Greater	X			X		X	X				X		5
Less					X				X		X		3
No Change		X	X					X		X			4

The information given in the above table shows a slight gain in the cost of supplies and equipment in those schools of the Eight Year Study which participated in this survey of industrial arts. It would be expected that new materials such as alabaster, aluminum, copper, silver, tile, plastics, etc. would increase the cost of an industrial arts program. Indeed it is surprising that in three schools it is claimed that the new industrial arts demanded by a progressive education program actually costs less than the older, narrowly limited work.

Equipment Needed. A change in the program of industrial arts often times necessitates a change in equipment. Changes in educational practices and procedures may create a need for additional equipment or may involve less equipment than has ordinarily been used. Table XV shows the equipment change in the progressive education schools surveyed.

TABLE XV

EQUIPMENT NEEDED IN THE PROGRESSIVE EDUCATION PROGRAM

Equipment needed in the New Program	Schools Reporting												
	1	5	8	12	13	14	16	17	25	26	27	29	Total
More equipment needed						X	X	X			X		4
Less equipment needed			X						X				2
No change in equipment needed	X	X		X	X					X		X	6

The fact that six of the schools reported that there had been no change in equipment needed could possibly be due to economic conditions. The addition of new materials and activities would no doubt call for more equipment with which to work.

Required and Elective Courses. Industrial arts in most schools has two major applications. First, it serves as a part of the common

or core program of general education, making its contribution to the general development of the student. Second, it serves as a free elective to supplement and integrate the general education program. Table XV shows the grade levels at which industrial arts was required and elective, previous to the beginning of the Eight Year Study.

TABLE XVI

INDUSTRIAL ARTS REQUIRED AND ELECTIVE UNDER THE OLD PROGRAM

Grade Level	Industrial Arts Required	Industrial Arts Elective
7th grade	10 schools	2 schools
8th grade	8 schools	4 schools
9th grade	6 schools	6 schools
10th grade		11 schools
11th grade		11 schools
12th grade		11 schools

In the Junior High Schools, as shown in Table XVI, industrial arts was required in most cases in the seventh grade under the previous program. Fewer schools require industrial arts in the eighth grade than in the seventh. In the ninth grade half of the schools require the students to take shop work, while the other half offer it as a free elective. All of the schools offer industrial arts as an elective in senior high school.

Specialization. Industrial arts may serve as a field of learning open to those who wish to develop avocational and recreational interests. Interest and aptitude is bent in that direction. It may also serve those who wish to specialize in some particular field of industrial work. Table XVII shows the number of schools permitting students to specialize in an industrial arts field and the grade levels in which it is permissable.

TABLE XVII

STUDENTS PERMITTED TO SPECIALIZE IN SOME FIELD OF INDUSTRIAL ARTS WITHOUT REGARD TO CORRELATION OR INTEGRATION

School	Yes	No	In Grades
1		*	
8	*		
10	*		
12		*	
13	*		Senior
14	*		10-12th
16	*		11-12th
17	*		All grades
22	*		10-12th
25	*		10-12th
27	*		7-12th
29	*		12th

Nine of the eleven schools returning the questionnaire show that industrial arts in these progressive education schools still serves as an area of learning in which the student may specialize in some field of industrial work.

It has been thought by industrial arts instructors that the students in industrial arts under the progressive education plan would be allowed to construct any project of their own choosing regardless of skill or experience. The information presented in Table XVIII concerns the selection of projects by students of industrial arts in the Eight Year Study experimental schools.

TABLE XVIII

STUDENTS SELECT PROJECTS REGARDLESS OF SKILL

	Schools Reporting															
	1	5	8	10	12	13	14	16	17	22	25	26	27	29	Total
Yes	X*	X		X		X*		X*							5
No			X		X		X		X	X	X	X	X	X	9

* 1 - With limits; 13 - To some extent; 16 - If not too difficult

It is shown that in the progressive education schools which took part in this survey the students are allowed to choose projects within their ability in most cases. However, skill is the determining factor in regard to the difficulty of the project in most of the schools reported in the above table. In fact, in nine of the fourteen schools skill is one of the deciding factors taken into consideration in the selection of projects.

Proper Use of Tools. The thought of allowing many activities to be going on at the same time in the industrial arts shops has brought to the attention of the instructors of this subject the question of the use of tools. Will the proper use of tools be taught or will the students be allowed to discover their own method of use through experimentation? Table XIX contains information on this question.

TABLE XIX

METHOD USED IN OPERATING TOOLS AND MACHINES

Method Used	Schools Reporting													
	1	5	8	10	12	13	14	16	17	22	25	27	29	
Use tools and machines as a skilled Workman	X	X	X	X	X	X	X	X	X	X	X	X	X	
Students follow their own method of use					*									

* Once in a while

It can be seen that there is a universal agreement by the instructors of industrial arts in the progressive education schools listed in Table XIX, that the correct use of machines and tools must be demanded.

Size of Projects. Changing from traditional to progressive education practices might perhaps cause a change in the size of projects

constructed in the progressive education schools under study is tabulated in the following table.

Most of the new materials and activities which have been added to the industrial arts programs of these schools would lend themselves

TABLE XX

SIZE OF PROJECTS CONSTRUCTED UNDER THE PROGRESSIVE EDUCATION PLAN IN THE INDUSTRIAL ARTS SHOPS

Size of projects constructed under Progressive Education Plan	Schools Reporting											Total
	1	5	8	13	14	16	17	25	26	27		
Larger projects constructed	X			X	Group Proj.					X		3
Smaller projects constructed			X		Individual Proj.	X	X	X				4
No change		X							X			2

to smaller projects. Four of the schools have indicated that smaller projects are being constructed. Three schools report that larger projects are being chosen by the students which might be due to the fact that more freedom of choice is being given to the student.

Project Planning. It might have been thought by industrial arts instructors that since the shops have been used in a few instances

for activity types of work under the progressive education plan that the students would not be required to make any sort of a project plan before beginning work on a project. The information in Table XXI concerns this question.

TABLE XXI

STUDENTS REQUIRED TO MAKE PROJECT PLANS BEFORE BEGINNING THE CONSTRUCTION OF A PROJECT

Are students required to make a project plan before beginning construction?	Schools Reporting												
	5	8	10	12	13	14	16	17	22	25	26	27	29
Yes	X	X	X	X	X	X	X	X	X	X	X	X	X
No													

From the information presented in Table XXI it is apparent that project planning is required by all teachers of industrial arts in the progressive education schools from which reports were received. In fact the strong emphasis in Progressive Education on thinking and on reliance on intelligence, demands careful planning before any project or undertaking is begun.

Interest and the Project. Usually industrial arts instructors have held the students responsible for completion of projects which

have been planned and on which work has been started, even though interest in the project may lag. Progressive education demands that normal interest should be the motive of all work. Students might be allowed to stop work on a project if interest in it were gone, in an industrial arts program following this belief. Table XXII presents information concerning the practices being followed in the progressive schools under study.

TABLE XXII

STUDENTS REQUIRED TO FINISH PROJECTS IF INTEREST LAGS

Students Required to finish projects regardless of interest	Schools Reporting																
	1	5	8	10	12	13	14	16	17	22	25	26	27	29	Total
Required under previous program: Yes	X	X*	X	X						X			X		6
Required under previous program: No						X			X		X				3
Required under progressive education program: Yes	X	X*	X	X	X		X*	X*		X		X		X*	10
Required under progressive education program: No						X			X*		X		X		4

* With exceptions 14 - usually; 17 - usually; 29-is encouraged.

An increase is noted in Table XXII in the number of schools requiring the student to finish a project even though interest may lag. Under the progressive education plan, if the project is chosen by the student because of his interest in it and it is within his ability, the possibility of losing interest during the construction should be lessened.

It has often been reported that in some progressive education experimental schools, projects are constructed in the industrial arts shops by the regularly scheduled classes to be used in carrying out problems under study in other departments. If it is true that this practice is carried on extensively, the shops would become a service department to the other subject fields. Table XXIII contains information concerning this practice in the progressive education schools under consideration

TABLE XXIII

INDUSTRIAL ARTS AS A SERVICE DEPARTMENT TO THE OTHER SUBJECT FIELDS

School	Industrial Arts Service Department to the other Subject Fields		Students work on Special Outside Projects to be Used in other Classes	
	Yes	No	Yes	No
1.		X		X
5.		X		X
8.		X	Occasionally	
10.		X		X
12.		X	X	
13.		X		X
14.		X		X
16.		X	Not forced X	
17.	Largely X			X
22.		X		X
25.		X		X
26.		X		X
27.		X	At times	
29.		X		X

In most of the schools considered in this report, it is not a practice in industrial arts to stop work on projects of the student's own choice and construct special projects for other classes. It may be noted that in only one school is industrial arts considered as "largely" a service department.

Personnel Organization. It is considered a good practice in industrial arts to organize the shops under a personnel plan which is used in caring for the shop in general and for putting the shop in order at the end of the period. Usually these assignments have been rotated among the students, each assuming his responsibility in turn even though the task may be unpleasant. The information presesen ed in Table XXIV concerns this practice under the progressive education plan.

TABLE XXIV

PERSONNEL ORGANIZATION IN INDUSTRIAL ARTS UNDER PROGRESSIVE EDUCATION

School	Are personnel organizations set up in the shops?		Jobs Rotate		Are the students required to do the unpleasant task in the shop even though some object?			
					Old Program		New Program	
	Yes	No	Yes	No	Yes	No	Yes	No
1		X			X		X	
5	X			No	X		X	
8	X		Yes		X		X	
10	X*	X**			X		X	
12		X			X		X	
13	X		Yes		X		X	
14		X					X	
16		X			X		X	
17		X	Each	has duties			X	
22	X				X		X	
25		X		No				
26		X	Yes				***	
27		X			X		X	
29	J.H.S.	S.H.S.			X		X	
Total	6	10	3	2	10		12	

*Print Shop ** General Shop ***Each responsible for what he uses

Information presented in Table XXIV, shows that ten of the progressive education schools do not operate the classes under a personnel organization. The instructors indicated a unanimous vote that the students were required under the old program to do the unpleasant tasks in the shop and that requirement is unanimous in the shops under the progressive education plan.

Speed Emphasized in Industrial Arts. In general speed has not been emphasized in industrial arts except in the sense that a reasonable length of time be spent in the construction of a project. In the industrial arts programs of the past, where the projects to be constructed were often specified by the instructor and all students were working on the same kind of project at the same time, it was possible to specify a definite time when the work was to be completed. This practice called for a certain amount of speed in carrying on the construction

TABLE XXV

EMPHASIS ON SPEED IN INDUSTRIAL ARTS

Is speed emphasized as you would emphasize speed in reading?	Schools Reporting												
	1	5	8	10	12	13	14	16	17	22	25	26	27
Yes			X										X
No	X	X		X	X	X	X	X	X	X	X	X	

on the part of the student. Later practices in industrial arts have been to allow the students a wider selection of projects. This has made the problem of keeping the amount of time each student spends on a particular project within reasonable limits, more difficult to manage. Progressive education practices allow still more freedom of choice and a wider variety of types of projects as well as kinds of activities which would seem to make the problem of speed emphasis a still more difficult one. The information presented in Table XXV concerns the emphasis of speed in industrial arts in the progressive education schools under study in this report.

Table XXV shows only two instances of any emphasis being placed on speed in the industrial arts departments of the schools taking part in this survey.

Quality of Workmanship. With more freedom of choice of projects and a greater variety of activities going on at the same time in the shops under the progressive education plan, the problem of supervising the quality of workmanship and design would perhaps become more difficult, especially in the case of large classes. If the student produces a

TABLE XXVI

STUDENTS PERMITTED TO TAKE HOME PROJECTS REGARDLESS OF WORKMANSHIP OR DESIGN EMPLOYED

Are students permitted to take projects home regardless of quality of workmanship or design?	Schools Reporting													Total
	1	5	8	10	12	13	14	16	17	22	25	26	27	
Yes	X	X		X	X	X		X		X			X	8
No			X				X		X		X	X		5

project of inferior workmanship and design when he may be capable of doing better, providing the instructor had had more time for supervision, should the student be permitted to take the project home? Table XXVI concerns this practice in the progressive schools under study in this report.

It seems that in eight schools, the students are permitted to take their projects home regardless of quality of design or workmanship.

In some of the progressive education experimental schools the industrial arts and the fine arts departments work in close coordination with each other. In these instances the students take their project designs to the fine arts instructor who offers criticism and suggestion in the designing of the projects to be constructed in the shops.

TABLE XXVII

STUDENTS GO TO THE FINE ARTS DEPARTMENT FOR SUGGESTION ON DESIGN

Do students go to the Art Department relative to design?	Schools Reporting													
	5	8	10	12	13	14	16	17	22	25	26	27	29	Total
Yes			**		X	X	*							2
No	X	X*	X	X				X*	X	X*	X*	X	X	9
Do conflicts arise between instructors?					No									

* Permitted ** Urged to

Often times the fine arts instructor is not familiar with the limitations of the materials or methods of construction to be used in the making of the project, which makes it necessary for the industrial arts instructor to suggest changes in the design after the art instructor has already passed on it as being good. Personal difficulties might often arise between instructors where this is practiced. Table XXVII shows whether the above mentioned combination is being carried out in the progressive education schools on which reports are made in this study.

In most of the progressive education schools under consideration in this report, the fine arts instructor does not serve as the art and

design critic of the projects to be constructed in the industrial arts shops. Five of the schools not following this practice mention that the student may go to the art instructor for suggestion.

Major Emphasis on Creative Ability or Scientific Thinking. If the major emphasis of industrial arts is placed on creative ability where the student may follow his own natural talents in the shop and work out his own methods of doing the work, he may develop many bad habits of thinking

TABLE XXVIII

MAJOR EMPHASIS PLACED ON CREATIVE ABILITY OR SCIENTIFIC THINKING IN TERMS OF CONCRETE EXPERIENCES

Major emphasis placed on:	Schools Reporting														
	1	5	8	10	12	13	14	16	17	22	25	27	29	Total
Creative Ability	X	X	X	X	X	X	X		X	X		X	X	11
Scientific thinking in terms of concrete experiences	X					X		X	X	X		X	X	7

and doing, even though he is creating. If the major emphasis is placed on scientific thinking in terms of concrete experiences, perhaps the creative ability could be developed to a higher degree. Table XXVIII shows the placement of emphasis in regard to creative ability and scientific thinking in the progressive education schools of the Eight Year Study which are considered in this report.

Equal importance is placed on creative ability and scientific thinking as points of emphasis in the majority of the progressive education schools under consideration in this study.

Integration. It is claimed that a school operating under the theory of progressive education will produce individuals who are better integrated sociologically and psychologically than did the traditional school curriculum. The integration of industrial arts with other subjects under progressive education should lend itself to the task of achieving this desired outcome. Information concerning this question is shown in Table XXIX.

TABLE XXIX

BETTER SOCIOLOGICALLY AND PSYCHOLOGICALLY INTEGRATED INDIVIDUALS PRODUCED THROUGH INTEGRATION OF INDUSTRIAL ARTS WITH OTHER SUBJECTS

	Yes	No	Partly
Has the integration of the Industrial Arts with other subjects produced better sociologically and psychologically integrated individuals in the majority of cases?	3	7	1

In the majority of cases the schools from which information was received seemed to feel that the integration of industrial arts with other subjects does not necessarily produce a better sociologically and psychologically integrated individual.

Related Information. It is the belief of progressive education leaders that related information should be taught to the students whenever the need arises for such information. This has been practiced to some extent in industrial arts with some types of information and usually where the classes were small. Large classes have tended to necessitate the teaching of related information as a definite part of the course. The practice followed in the schools of the Eight Year Study of the Progressive Education Association from which reports to the questionnaires were received are tabulated in Table XXIX. Examination of this information shows that in the majority of schools reporting, applied science, mathematics and design are taught whenever the need arises for the information. The report shows that in most cases tool sharpening is taught as a definite part of the course. Under the previous program of industrial arts in these schools, it is revealed that the teaching of related information was divided between the two practices, that is, half of the schools followed one practice while the other half followed the other.

It has been recommended that from fifteen to twenty per cent of the teaching time be spent in teaching related information. The information presented in Table XXX shows that the schools under study are practically in line with this recommendation.

The information presented in Table XXX shows that in the schools reporting the per cent of time devoted to the teaching of related information, the average time is over twenty-three per cent, which is

School	Instructor time devoted to related information	Related information taught under previous program		Shop drawing taught under present program		Applied design taught under present program		Applied science taught under present program		Tool sharpening taught under present program	
		When needed	As part of course	When needed	As part of course	When needed	As part of course	When needed	As part of course	When needed	As part of course
1	20%		*		*	*			*		*
5	25%		*	*		*		*			*
8	50% (voc.)			*		*		*			*
10			*	*		*		*		Young *boys	Older * boys
12		*		*		no	no	*		*	*
13		*		*			no		no		*
14		*		*			*	*			*
16	One period per week *		*		*	*		*		*	
17	5%	*		*		*	*	*	*	*	
22	20%	*		*		*		*			*
25	15%		*		*	*		*			*
26		*		*		*		*			*
27	25%		*	*		*		*		*	
29	25%			*	*	*		*	*		*
Total	23.1% av.	6	6	11	4	11	2	12	3	5	11

practically the same as is common to any industrial arts program. This table also shows that six of these schools previously taught related information when there was a need for such and six schools offered it as a definite part of the shop course. Under the progressive education plan, shop drawing, applied design and applied science are practically taught when there is a need for the information. Tool sharpening is shown to be offered more as a definite part of the instruction.

Voluntary Comments by the Recipients. The following comments were voluntarily added to the questionnaires. Many of these give specific additional information concerning progressive education and the effect it has had on the industrial arts program.

Some of the instructors penned on the questionnaires the following information concerning the industrial arts program in the progressive education school in which they are instructors:

> Our high school has been purely a college preparatory school for over twenty years. Eighty-eight percent of our graduates attend some institution of higher learning. Many enter the more prominent Eastern Colleges. This fact has caused too much emphasis to be placed upon the so-called fundamentals which are required, while the manual arts and other arts are elective. Community pressure is great in this direction. Our industrial arts and home economics departments have been on a progressive basis long before our school entered the Eight Year Study. Of the one hundred and fifty pupils in the experimental group, very few are taking any of the arts outside of art appreciation given in connection with other subjects. Most all of these students are taking five electives and do not feel manual arts should be one of them.

We have an activity period especially for giving students a chance to do the things they want to do. Once they choose their activity, they stay with it.

We are a college preparatory school and very little time and encouragement is given to shop work.

We have set up a project shop not connected directly with the industrial arts department, but presided over after school hours by a member of the industrial arts department. In this project shop, people from the experimental group, and from the school in general, have been able to come and carry out projects which have no connection with the industrial arts course.

The shop sponsors an important student activity, the Engineering Committee, that works in vocational, pre-college.

We teach thirty-two fields in the general shop, eight rooms, twenty-eight hundred square feet of floor space, with one teacher and one assistant.

Special conditions at our school which may make the industrial arts teaching different from that in other schools:

1. The students all go to college, with the possible exception of one or two each year who usually go to special schools such as art schools. Consequently, the vocational angle is ignored except for those preparing for engineering schools.
2. Industrial arts is elective in grades ten, eleven, and twelve but many are kept out by pressure of college entrance preparation.
3. Types of students: most of the students are children of fairly well-to-do parents, living in apartment houses, with plenty of toys, radios and games. Hence, the interest in furniture making, toys, and games is not as great as that of boys in smaller towns who have attics, cellars, or barns which they need equipment for. Hence, we stress wood turning for boys and girls, jewelry for girls, railroad model club to stimulate interest in the machine shop.

I do not teach related information because:

1. The time for shop has been cut down by the exploratory program, (for grades seven, eight and nine, including girls.)
2. Much of the information is given our school in general science, applied science, social studies, history, or the engineering courses.
3. Our students are inclined to be theoretical rather than practical, consequently they need very minute of practical work they can get.

These comments point out several significant points, one among these being the fact that so many of the eastern secondary schools are strictly college preparatory and seem to direct so much of the instruction toward the entrance requirements and examinations of the colleges to which the students plan to go.

In view of the fact that it is difficult to secure information through the questionnaire method which will give a true interpretation of a situation, it is the belief of the writer that from the data presented in this chapter a fairly accurate picture is given of the changes in the progressive education schools and their relation to industrial arts.

Specific conclusions, drawn from the data presented, are recorded in Chapter VII in the form of a summarization accompanied by specific recommendations.

CHAPTER VII

SUMMARIZATIONS AND RECOMMENDATIONS

Since the Eight Year Study of the Progressive Education Association is an experiment with progressive education theory and practice, the outcomes of this study should not necessarily be alarming. At the outset of the Eight Year Study, it was agreed that those educational practices, procedures, subject matter and so forth, which, during the course of the experiment, proved to be superior to previous practices, should become permanent in the educational plan of the schools. It was also decided that any practice, procedure or methods which did not prove to be better than those used previous to the experiment would be discarded. It has been an endeavor to improve the school by retaining all that has been good in the previous secondary school program and to add all that has proven, through scientific experiment, to be sound practices and better subject matter content.

Progressive education practices are being tried in hundreds of schools throughout the United States. The Eight Year Study of the Progressive Education Association is only one specific group endeavor. This study is confined to the Thirty Schools of the Eight Year Study. Therefore the information revealed here pertains only to industrial arts in progressive education in so far as the Eight Year Study is typical of progressive education.

The writer has accepted the answers given to the questionnaires to be the honest opinion of the recipients regarding the effect of progressive education practices on their industrial arts programs. From this information the writer offers the following summary.

PART A

SUMMARY OF FINDINGS

Industrial arts has a definite responsibility in progressive education. This subject can contribute in a large measure to the achievement of such progressive education objectives as: (1) learn to respect and recognize the rights of others; (2) to assume leadership and respect sound followership; (3) produce experiences within the abilities, aptitudes and interests of the students; (4) foster the development of mental and physical health; (5) develop the ability to think critically and independently; (6) and furnish opportunity for creative participation in vocational and recreational activities.

1. Special emphasis in industrial arts is being placed on creative exercises, activity with appeal to the interest of the boy, avocational interests, while vocational guidance values and skills rank low in the placement of emphasis.

2. An industrial arts program operating under such a set of objectives as was presented to the progressive education schools, would make a large contribution to the fulfillment of the desired outcomes of a secondary school operating under the progressive educational plan.

3. A wider variety of materials are made available to the students.

4. A wider variety of activities in industrial arts is made available under the progressive plan.

5. The individual method of instruction is gradually taking the place of the group plan.

6. More time is being devoted to industrial arts under progressive education.

7. Careful thoughtful work is being carried on by the students in most of the schools.

8. The industrial arts shops are being used as a free activity, open to any student who may wish to come in and work.

9. There is no indication of any change in the number of accidents in the shops due to the additional freedom allowed the students to use tools and machines.

10. More teacher energy is needed under the progressive education plan than was needed in the previous program.

11. The class size per period has remained about the same as it was under the previous program.

12. The student capacity of the shops has remained about the same as it was under the previous program.

13. There appears to be a slight increase in the waste of materials under progressive education.

14. There has been a slight gain in the cost of supplies and equipment under progressive education.

15. There is a slight indication that more equipment is needed under progressive education.

16. Industrial Arts has previously been required in most of

the schools on the seventh grade level with more freedom of election in higher grades.

17. Industrial arts still serves as an area of learning in the higher grade levels where the student may specialize in some field of industrial work.

18. Skill is still the determining factor in regard to the selection of projects.

19. The correct use of tools and machines is demanded under progressive education.

20. In general the size of projects is smaller under progressive education.

21. Students are required to make project plans before beginning the construction of a project.

22. In general, students are required to finish a project even though interest in it may lag.

23. Students in regularly scheduled classes are not required to stop work on projects of their own choice and build special projects to be used in other departments.

24. Students are required to do the unpleasant tasks which are necessary in the industrial arts shop.

25. Student personnel organizations are not commonly used in the industrial arts classes of these progressive education schools.

26. Speed is not emphasized in industrial arts under progressive education.

27. Students are allowed in many instances to take their projects home regardless of the quality of workmanship displayed.

28. It is not a general practice to use the fine arts instructors as art and design critics of the projects made in the industrial shops.

29. In most of the schools, equal emphasis is placed on creative ability and scientific thinking.

30. The integration of industrial arts with other subjects does not necessarily produce a better sociologically and psychologically integrated individual.

31. Practically the same amount of the instructors' time is devoted to the teaching of related information.

32. Shop drawing, applied science and applied design are generally taught when the need arises for the information.

33. Tool sharpening is generally taught as a specific part of the course.

34. Progressive education practices have not caused any drastic changes in the industrial arts programs of these schools.

35. The industrial arts education classes of the experimental schools are relatively small. Only one school reported having above thirty pupils per class.

PART B

RECOMMENDATIONS

The recommendations made here are based upon the experience of the writer while working on this thesis and as an industrial arts instructor in one of the Thirty Schools of the Eight Year Study of the

Progressive Education Association. These suggestions are far from being all inclusive and should be considered with the thought in mind that these are only one individual's suggestions. The following suggestions are made by the writer with the sincere belief that they are worthy of consideration.

Problems for Further Study. Several problems for further study in regard to industrial arts in progressive education have presented themselves while carrying out the research work on this thesis. These problems are listed as suggestions for further study.

1. Additional research on the subject of this thesis, perhaps by collecting information from as many of the instructors in each of the experimental schools as possible, which would give a broader picture and more valid information.

2. Survey the industrial arts programs in some of the public schools which are not taking part in any particular group study, in search of information concerning the place of industrial arts in the progressive education school. Such a study would probably better serve the needs of those instructors who are working in public schools since the private schools deal with selected students and small classes, while the public school is often over-crowded with a heterogeneous student body.

3. Conduct experiments in the classroom with progressive education practices in search for better methods of instruction, organization of the shop and experiences offered.

4. Make a study of evaluation in industrial arts and the application of industrial arts in the general evaluation program. Industrial arts offers an opportunity for the display of many of the changes which are taking place in the students. Industrial arts could render a great service in this particular direction in a progressive education program.

SUGGESTED APPLICATIONS OF INDUSTRIAL ARTS

Industrial arts has always contributed heavily to the general education of the pupil. There are numerous opportunities of applying industrial arts to a general education program under the philosophy of progressive education. The suggested applications of industrial arts to general education which are presented here are in addition to the contributions and applications which are already being made.

1. Offer industrial arts to girls. Allow girls to exercise the creative urge rather than a set home mechanics course.

2. Build up a good reference library of as wide a variety of related information as possible.

3. Make the industrial arts work as individual as possible. Allow freedom in choice of projects, restricted only by the skill necessary to carry out the work.

4. Allow as much student participation in the operation of the shop as possible. A good personnel plan offers experiences of first rate educational values.

5. Take the classes on inspection trips to industries in the community, especially those that are related to the types of industrial arts work offered in the school.

6. Take advantage of industrial films, to bring into the shop industries and activities which cannot be visited.

7. Make a list of industrial arts theme subjects for the English instructor to use in composition.

8. Make a list of words and send to the English instructor to be used in word study.

9. Industrial arts instructor can sponsor a hobby show or have students bring their hobbies to school and make up a display.

10. Organize a hobby club.

11. Promote the development of home workshops. Take students on a home workshop tour.

12. Have material and tool catalogues available for student use.

13. Give school credit for work done at home. Have student make out the usual plan and have parents certify that the work has been completed in a workmanlike manner.

14. Open the shops for one period per day to any student who

wishes to come into the shop and work. Require a plan of the work to be done and that the work be within the ability of the student. The instructor must be free from any other class during this period.

15. Keep individual records of each student, recording projects made, amount of time spent on each, special talents exhibited, good points of citizenship, bad points of citizenship exhibited, leadership, followership, special interests, hobby and so forth.

16. Keep a diary of industrial arts situations, experiences, problems and activities which may bring out an expression of some desirable or undiserable change which has taken place in the student. Such information will be helpful to the evaluation committee.

17. Teach related information as the need arises for such, if classes are small; that is, about twenty pupils per class or under.

18. Make the shop drawing more interesting to the student by drawing shop projects or home projects which the student plans to make, as soon as the mechanics of making a working drawing are understood and can be executed.

19. Have each student make a survey of his home in search of needed improvements which they can construct in the school shop.

A study of this nature cannot be considered as complete or final. Progressive education practices are making changes in the secondary schools. These changes are continuous. Industrial arts is undergoing changes under

the progressive education plan. This study has shown the present practices in the industrial arts of some of the schools of the Eight Year Study, and also the changes which have been made in industrial arts under the progressive education plan. This study should stimulate those who are interested in and those who are now working in progressive education schools, to further studies on this subject.

APPENDICES

Appendix A - Tulsa Objectives of Industrial Arts

Appendix B - Tulsa General Education Objectives

Appendix C - Inquiry Forms

Appendix D - A Selected Bibliography

APPENDIX A

INDUSTRIAL ARTS OBJECTIVES OF THE TULSA SECONDARY SCHOOLS

MAJOR OBJECTIVE

The major objective of the junior high school manual arts is to develop habits of thinking in terms of material things through analyzing, planning, and performing mechanical tasks within the ability and interest of the student.

1. Teach the steps in scientific thinking

2. Have the pupils suggest plans that will improve methods of handling materials, tools, etc., that will make for economical class procedure.

3. Furnish each boy with a list of operations and have him select from that list the ones he will use in a particular project.

4. Have students make plans for home projects and give them shop credit for home projects that give evidence of good planning and good workmanship.

5. Require a careful examination of all jobs, tasks, or assignments before beginning on them in order to find out just what is required.

6. Require a definite step by step plan for doing the job.

7. Have students evaluate and criticize their work.

8. Have students criticize their performance and have them suggest ways that they might improve.

OBJECTIVE I

To help vitalize the give meaning to, and in a measure, fulfill the purpose of, academic knowledge, especially in the fields of art, science, and mathematics.

1. Develop in each pupil the appreciation of good design.

2. Furnish opportunities for practical applications in science.

3. Furnish opportunities for practical applications in mathematics.

4. Assign special informational topics.

5. Cooperate with other departments.

OBJECTIVE II

To provide exploratory experiences in several representative occupations, for the development of interests and discovery of aptitudes.

1. Trips to industry.

2. Conduct an organized study of occupations.

3. Personnel organization.

4. Develop clubs.

5. Give assembly programs.

6. The construction of stage scenery.

7. Experimental work at home.

8. Talks by persons from industry.

9. Use of films and slides.

OBJECTIVE III

To provide opportunity for the exercise of the creative urge in terms of material things.

1. Give boys recognition for new ideas.

2. Require each student to make a suggestion as to improvement of shop lay out.

3. Develop the habit of creating satisfaction in performance.

4. Recognition of accomplishment.

5. Know the limitations of materials.

6. Provide for free election of projects after fundamental skills have been learned.

OBJECTIVE IV

To develop mental and physical coordination through the use of hand tools, machines, and materials.

1. Familiarity with machines and how they operate.

2. Familiarity with tools and how they are used.

3. Familiarity with materials.

4. Develop the habit of an orderly method of procedure in performing a task.

5. Establish the habit of examining a problem to see what is required before beginning on it.

OBJECTIVE V

To provide forms of activity within the school which will appeal to and interest the adolescent boy.

1. Use of visual aids.

2. Visits to industrial plants.

3. Have number of interesting projects available.

4. Build up shop experiences around the boys' interests.

5. Personnel organization.

6. Provide opportunities for the student to repair articles for himself, his home, or others.

7. Contests and rewards.

OBJECTIVE VI

To contribute to the development of avocational activities and interests which may be followed outside of the school and in later life.

1. Develop clubs.

2. Provide various phases of activity in the shop.

3. Study possibilities of various phases of activity for avocational purposes.

4. Give aid in the establishment of home work shops.

5. Encourage work on home projects by allowing credit for them and requiring good workmanship in order to get the credit.

6. List the magazines, blueprints, books, and other materials available for particular phases of activities.

7. Hobby shows and displays

8. Study of materials, equipment, space, time, and cost of activity.

9. Consult vocational workers for information regarding the avocation.

OBJECTIVE VII

To develop ability in the consumer to judge and appreciate qualities of industrial products and their values.

1. Conditions in use of the article.

2. Qualities necessary for satisfaction.

3. Cost relationship to values.

4. Use of article for purpose intended.

5. Protection from unnecessary wear and damage.

6. Importance of making repairs and adjustments promptly.

7. The proper care of an article in use.

OBJECTIVE VIII

To give an understanding of, and to develop a favorable attitude toward industrial pursuits, and the men who work in industry.

1. How things are made.

2. Methods of distribution of articles.

3. Commercial sizes, grades, and classification of sales units.

4. Working conditions, requirements, and opportunities.

OBJECTIVE IX

To contribute toward the development of self-confidence through having successfully completed a shop project.

1. Familiarity with machines and how they operate.

2. The ability to use our common tools and materials sufficiently well to meet emergencies.

3. Develop the habit of an orderly method of procedure in performing a task.

4. Require pupils to complete every job or task that he has started or been assigned.

OBJECTIVE X

To contribute to the development of leadership by giving the boy an opportunity to assume responsibilities in the shop.

1. Personnel organization.

2. Have students make arrangements for visits to trade centers or industrial plants.

3. Assign students to act as guides and hosts for visitors who might come to visit the shop.

4. Provide opportunities for students to volunteer for work.

5. Participation in assembly programs.

6. Analyze and discuss the characteristics of good leadership.

7. Provide opportunities for additional leadership by organizing clubs in the department.

8. Discussion of the limits of the majority and the continuing rights of the minority in a democratic procedure.

9. Analyze situations in which students might have exhibited poor leadership.

10. Make students responsible for putting on a shop exhibit.

OBJECTIVE XI

To develop a knowledge of the more common tools of the household and to acquire some degree of skill in their use so that the boy may contribute his share to the up-keep of the home.

1. Have students service the tools in the home tool kit.

2. Have the students make a list of the jobs around the home wherein the use of the common tools are involved.

3. Recognition of tools and their uses.

4. Know the desirable characteristics of good tools for the household.

5. Offer a series of projects that will include all the common tool operations.

6. Teach the characteristics of the various materials used in the household, such as wood, metal finishes, etc.

7. Encourage students to make repairs on articles used in the home.

8. Conduct a discussion of the various possible uses of the tools of the household.

OBJECTIVE XII

To train in skills and abilities technically correct which may serve as a foundation for later vocational training.

1. Use and apply the laws of learning in developing skills.

2. Use some production jobs that will furnish learning units within the scope of the course.

3. Use related technical information assignments.

4. Provide training in those skills that are based upon the usual vocational and industrial grouping.

5. Stress the importance of speed.

6. Observation of men in the vocation.

7. Insist on using the methods practiced by skilled workmen.

8. Require students to keep tools and equipment in good condition.

OBJECTIVE XIII

To develop a health and safety consciousness in relation to manufacturing conditions and the general use of tools and machines.

1. Impress upon the students the importance of physical care which in any way effects their health.

2. Be sure that the student is familiar with the common health rules and that he practices them.

3. Develop safety consciousness by having students make a note of and repair various hazards about the school, in the home, or in the street.

4. Keep a record of accidents and their causes.

5. Make a study of shop safety rules and insist on students abiding by them.

6. Be prepared to give first aid.

7. Appoint a safety engineer in the shop.

8. Study the safety precautions that have been taken in industry.

9. Display health and accident charts.

10. Note the special health and accident hazards that are common to certain occupations.

11. Provide and stress the importance of good physical surroundings, light, heat, ventilation, proper tools, equipment, materials, and effective arrangement of the equipment.

12. Stress the importance of properly adjusted and properly serviced tools and machines.

13. Stress the importance of keeping the tools and machines sharp.

14. Stress the importance of proper and well kept clothing. Point out the danger of a dangling necktie or shirt sleeves when doing work with machines.

15. Point out the danger of throwing scraps on the floor.

16. Stress the importance of guards on machines.

17. Discuss remedies of accidents.

18. Start the students slowly and carefully when using dangerous machines.

19. Analyze the accidents that happen in the shop and in the community to discover the cause.

20. Study the cost of accidents to individuals, industry, and to the community.

21. Note safety factors on field trips and visits.

22. Require the use of guards on dangerous machines.

23. Know and work according to the limitations of the machine.

24. Make sure that the student understands his responsibility in using the machines.

25. Impress upon students the danger of distracting the attention of machine operators.

26. Arrange safety zones for dangerous machines whenever possible.

27. Do not undertake hazardous operations when feeling ill or when extremely fatigued.

28. Use safety devices such as push sticks, jigs, etc.

OBJECTIVE XIV

To give to each pupil a knowledge of good workmanship.

1. Compare articles of recognized superior workmanship with those of inferior workmanship.

2. Have the class make a score-card for rating workmanship and then objectively rate the finished projects of the class.

3. Have displays of workmanship judged by the teacher and the class as to quality of workmanship.

4. A discussion on honesty of workmanship.

5. Compare old and new construction methods, such as peg joints versus glue, nails, and screws; hand work versus machine work.

6. Compare the pupils' work of today with that of a week or a month ago.

7. Refuse to accept any work below the student's ability.

8. Study methods employed in counterfeiting good workmanship.

9. Visits to furniture factory or furniture stores.

10. Talk by experienced cabinet maker or wood finisher.

OBJECTIVE XV

To contribute to the development of self-confidence in the individual, to enable him to meet unusual or unfamiliar situations regarding material things.

1. Establish the habit of examining a problem to see what is required before beginning on it.

2. Student be familiar with machines and how they operate.

3. Ability to use our common tools and materials sufficiently well to meet emergencies.

4. Teach the steps in thinking.

APPENDIX B

TULSA GENERAL EDUCATION AIMS

I. To develop a fundamental faith in the American ideal of Democracy and to develop those attitudes, skills, and understandings which will enable the individual, as a member of the social group concerned, to become a positive force in the process of its achievement.

A. Furnish opportunities to the student for participation in desirable democratic procedures during his school life.

B. Develop in the pupil an understanding of American ideals and institutions and a desire to preserve and improve them.

C. Enable the student to understand the social, political, and economic society of which he is a part.

D. Develop an understanding of, and a desire to use, the democratic method as a way of solving economic and social problems.

E. Develop in the pupil an understanding that progress can come only through the cooperative effort of men and communities.

F. Develop in pupils a sense of social responsibility which recognizes the duties and obligations which one has toward the groups of which he is a member.

G. Develop in the pupil a knowledge not only of our dependence upon the past but of the international inter-dependence of the world today.

H. Develop in pupils an appreciation of the life and customs of the people of other lands and a consciousness of their problems and difficulties.

I. Develop in pupils the ability to recognize and respect the rights of others.

J. Develop in him the ability to assume leadership, and to recognize and be willing to respect and follow sound leadership.

K. Develop in pupils an understanding of the physical world which is about them and how it can be made to serve the needs of man.

L. Develop in a student the courage to face intellectual opposition and to stand for one's own convictions against popular clamor and material gains.

M. Develop in pupils the ability to think critically and independently.

II. To develop an effective personality through an understanding of self and through an appreciation of the importance of the aesthetic and the spiritual in human activities. An acceptance of this aim would obligate the school to provide experiences which will: (1, page 4)

A. Develop in the pupil the attitudes and skills which are necessary in establishing and maintaining satisfactory adjustments in his immediate personal and social relationships.

B. Be of such nature as to give the pupil an understanding of himself and to foster the development of physical and mental health.

C. Furnish opportunities for creative participation in vocational, recreational and spiritual activities which will recognize and develop the needs, interests, abilities and aptitudes of the individual pupil.

D. Help the pupil to develop into a poised, self-disciplined and resourceful individual.

E. To provide experiences which will direct the pupil into such lines of endeavor as are compatible with his abilities, aptitudes and interests.

APPENDIX C

INQUIRY FORMS

The Postal Card Questionnaire

Dr. Harry Gowans
Superintendent of Schools
Tulsa, Oklahoma

Please send the following information:

1. Names of the Industrial Arts instructors in your school.
2. The subjects they teach.
3. The name of the Director of Industrial Education in the City of Tulsa.

Sincerely yours,

C. V. Bailey

A SURVEY OF THE THIRTY SCHOOLS

WHICH ARE PARTICIPATING IN THE EIGHT YEAR STUDY OF THE

PROGRESSIVE EDUCATION ASSOCIATION

By C. V. Bailey, Clinton Junior High School, Tulsa, Oklahoma

To the Heads of Departments of Industrial Arts in the Thirty Schools of the Progressive Education Association Experiment.

Sirs:

Will you please answer all questions on the inquiry form? Any special point regarding your program as effected by the Thirty School Experiment may be described on the back of the pages.

OBJECTIVES

The following objectives were formulated by and for the Tulsa Public Schools Industrial Education Department. Will you please indicate the degree to which each of these objectives harmonizes with the objectives of the Progressive Education group as formulated in your school?

Please indicate the degree of agreement expressed by 1,2,3,4, or 5, where (1) equals entire agreement; (2) reasonably close agreement; (3) about fifty percent agreement; (4) little agreement; and (5) no agreement.

MAJOR OBJECTIVES: The major objective of the junior high school manual arts is to develop desirable habits of thinking in terms of material things through analyzing, planning, and performing mechanical tasks within the ability and interest of the student._____(__)

MINOR OBJECTIVES:

1. To help vitalize and give meaning to, and in a measure fulfill the purpose of, academic knowledge, especially in the fields of art, science & mathematics._____(__)
2. To provide exploratory experiences in several representative occupations, for the development of interests and discovery of aptitudes._____(__)
3. To provide opportunity for the exercise of the creative urge in terms of material things._____(__)
4. To develop mental and physical coordination through the use of hand tools, machines, and materials._____(__)
5. To provide forms of activity within the school which will appeal to the interest of the adolescent boy._____(__)
6. To contribute to the development of avocational activities and interests which may be followed outside the school and in later life.(__)
7. To develop ability in the consumer to judge and appreciate qualities of industrial products and their values_____(__)
8. To give an understanding of, and to develop a favorable attitude toward industrial pursuits, and the men who work in industry.____(__)
9. To contribute toward the development of self-confidence through having successfully completed a shop project._____(__)
10. To contribute to the development of leadership by giving the boy an opportunity to assume responsibilities in the shop_____(__)

11. To develop a knowledge of the more common tools of the household and to acquire some degree of skill in their use so that the boy may contribute his share to the up-keep of the home._____(__)

12. To train in skills and abilities technically correct which may serve as a foundation for later vocational training._____(__)

13. To develop a health and safety consciousness in relation to manufacturing conditions and the general use of tools and machines(__)

14. To give to each pupil a knowledge of good workmanship____(__)

15. To contribute to the development of self-confidence in the individual, to enable him to meet unusual or unfamiliar situations regarding material things._____(__)

1. Express in general terms the degree to which these objectives of industrial arts agree with the objectives of the Progressive Education Association._____

_____

_____

2. Have there been any radical changes in the industrial arts offerings in your progressive education experiment? Such as:

a. New materials introduced:

(1)_____ (4)_____

(2)_____ (5)_____

(3)_____ (6)_____

b. Use of old materials discontinued:

(1)_____ (3)_____

(2)_____ (4)_____

c. Any other changes:

(1)_____ (3)_____

(2)_____ (4)_____

3. Has there been any radical change in method of instruction?

a. Individual instruction_____

b. Group instruction_____

c. _____

d. _____

4. Is additional time devoted to industrial arts? Yes____No____

What is the percentage of loss or gain?_____

5. Is your major emphasis placed on creative ability? Yes____No____

6. Is your major emphasis placed on scientific thinking in terms of concrete experiences? Yes____No____

7. Is the net cost of supplies and equipment to the school less or greater in your present program? Less____Greater____No change_____

8. Was industrial arts required or elective under the old program?

Required_____ Grades_____

Elective_____ Grades_____

9. In your old program did the instructor have a set course of study in:

a. Mechanical Drawing Yes____ No____

b. Applied Design Yes____ No____

c. Woodwork Yes____ No____

d. Sheet metalwork Yes____ No____

e. Art Metalwork Yes____ No____
f. Ornamental Ironwork Yes____ No____
g. Electrical Work Yes____ No____
h. Foundry Yes____ No____
i. Bench Metalwork Yes____ No____
j. Machine Shop Practice Yes____ No____
k. Auto Mechanics Yes____ No____
l. _____ Yes____ No____
m. _____ Yes____ No____
n. _____ Yes____ No____

10. If you do not have a set course of study NOW in each of the above activities, are the students permitted to select any project they want to make that appeal to their interest, regardless of their degree of skill? Yes____ No____

11. Under your old program was related information taught, incidentally _____, or as a predetermined part of the course____?

12. If the shop teacher teaches the related information, approximately how much time is devoted to this work?_____.

13. What was the maximum student capacity of your industrial arts shop?
a. Old program_____ b. New program_____

14. Was the wate of materials greater under the new program_____, or the old program_____?

15. If the student loses interest in the project which he has selected is he required to finish it, regardless?
a. Under the new program. Yes____ No____
b. Was this required under old program? Yes____ No____

16. In your new program is the student required to do the unpleasant task in the shop provided they need to be done, even though some of the students object? Yes_____ No_____
Was this true in your old program? Yes_____ No_____

17. Are the students required to stop work on projects of their own choice and construct special projects to be used in other departments as the need for them may arise? Yes____ No____

18. Are all students required to make a reasonably complete plan of each project before they start work? Yes_____ No_____

19. In the majority of instances, are the students permitted to work from drawings or blue prints made by others? Yes____ No____

20. Is there a period set apart when students from other classes may come into the shop and work? Yes____ No____

21. Are the students required to go the art department for suggestions relative to the design of their projects? Yes____ No_____
If so, are there serious conflicts between the art teacher and the shop teacher, relative to applied design? Yes____ No____

22. Does it require more or less equipment under your new program?
More_____ Less_____

23. Are smaller____or larger____projects made under the new program?

24. Are students permitted to specialize in some field of industrial arts where they need not be concerned with correlation or integration with one or more other subjects? Yes____ No____ If so, at what grade level?_____

25. Does each class have a personnel organization with a shop superintendent and foreman for the purpose of developing leadership and followership abilities? Yes____ No____ If so, do the boys rotate through the various positions? Yes____ No_____

26. Is your industrial arts shop a place where boys and girls go:
    a. for a free activity period_____, or
    b. a place where careful, thoughtful, and serious work is to be done_____?

27. Are students permitted to take home projects regardless of the quality of workmanship or design? Yes_____ No_____

28. Is speed emphasized in the shop as you would emphasize speed in reading? Yes_____ No_____

29. Is the industrial arts department considered as merely a service department for other subject matter areas? Yes_____ No_____

30. Do you have any concrete evidence that the integration of industrial arts with other subjects, under the new program produces greater integrated sociological and psychological individuals in the majority of cases? Yes_____ No_____

31. Is your experimental school a: junior high school_____, a senior high school_____? What grades_____?

32. What is the approximate total enrollment of your experimental school_____?

33. Were there more or fewer accidents under the new program of industrial arts? More_____ Fewer_____ No change_____

34. Does it require more or less teacher energy under the new program More_____ Less_____

35. What is the average teaching load in industrial arts per period? Old program_____ New program_____.

36. Are students taught shop drawing as a definite course,_____or as the students feel a need for it_____?

37. Are the students taught applied design as a definite part of the course_____, or as the students feel a need for it_____?

38. Are the students taught applied science as a definite part of the course_____, or as the students feel a need for it_____?

39. Are the students taught tool sharpening as a definite part of the course_____, or as the students feel a need for it_____?

40. Is there an attempt made on the part of the teacher to require pupils to operate tools and machines as the skilled workman would use them_____, Or are the students permitted to use their own methods_____?

41. Would you like to have a copy of the results? Yes_____ No_____.

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