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A Study to Determine the Content of an Industrial Arts Program in the Elementary Schools of Box Elder County

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A STUDY TO DETERMINE THE CONTENT OF AN INDUSTRIAL ARTS PROGRAM IN THE ELEMENTARY SCHOOLS OF BOX ELDER COUNTY

BY

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When in the course of human events exacting problems arise to initiate one into further realms of endeavor, how fortunate we are for friends and teachers willing to see us through.

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PURPOSE

The child is the reason for the school. He is the one for whom learning experiences are provided. Our understanding of the child as a growing individual and as a learner, his personality and his purposes and interests, supply the foundation for developing an effective educational program.

No longer do we look at the education program as a sole preparation for some future life. Instead it has now become more a process whereby we make the most of present living in order that we might live a more full and rich life each day. Education is something that goes on from birth to death both in and out of school. Going to school is, therefore, only part of one's whole education.

The curriculum is the heart of the school. The activities which comprise it, therefore, should be chosen cooperatively with parents, children and teachers and guided or directed with the utmost skill, for it is through the curriculum that education policies, philosophies, principles and objectives of pupils, teachers, parents, and other members of the local community gain expression in concrete form.

America today is moving rapidly from a relatively new agrarian culture to an industrial civilization. It is difficult to determine and operate a curriculum in a relatively stable era, but the problems are multiplied in a time when changes are so rapid that even the leaders are confused.

Teachers and curriculum directors, therefore, have a definite responsibility for attacking problems both economic and social of vital personal concern in such a manner that elementary school pupils of differing maturities and backgrounds can gain insight into and effect

solutions to persistent problems concerning family and community life.

It is recognized that a curriculum for boys and girls living in this present complex society, cannot be planned in advance with a hierarchy of learning experiences following a fixed sequential pattern. It is improbable that a curriculum of that type would be based upon the experiences of a single learner, and therefore, would not be meaningful to any one. This does not mean, however, that it is impossible for the teacher to plan activities which are generally within the experiences of the pupils of a given age. She should have some suggestions for the learners as she works with them to help attain individual goals and those of society.

With this in mind, the purpose of this study becomes not one to plan in advance a specific curriculum following a fixed sequential pattern of activities, but rather, as suggested, to provide, through a careful study involving parents and children concerned and literature written on the subject, a suggestive list of activities which can be used in carrying out a more desirable program in industrial arts in the elementary schools of Box Elder County: a program which will more fully meet the needs of the youth and the parents of this area and incorporate to a greater extent the educational policies, philosophies, principles and objectives of all concerned.

Industrial arts courses are a part of the general education and do not have a distinct bread and butter justification. They are assumed to generate sympathetic interest in the whole of industry. Instructors in this field aim at broad rather unspecialized and often remote values. They consider their subjects and their associations with pupils to be largely informational and inspirational. They do not strive to present all the fields and processes of industry, nor to have pupils attain salable abilities in trade pursuits. They seek merely to sample and to explain the mechanical world to young people in the hope of developing industrial and social intelligence. These teachers attempt to provide for their pupils such experiences, knowledge and insight as will help them to meet the demands of average living and of any calling. They desire particularly, that their pupils will understand themselves better during the time of occupational choice, and that they will grow in self-expression and in the development of hidden talents.

It is a well known fact that each community, and each and every individual will have his own opinion as to which of the many broad fields of industry he considers most important and of the most value; therefore it seems quite obvious to the writer that the activities which go to make up any curriculum in industrial arts should be designed to fit the particular community.

In determining the activities which make up the content of the child's curriculum, it is agreed by most writers that three factors should be taken into consideration in order that the curriculum might more fully meet the needs of the individual. These three factors are the child, society and recurring life situations. Granting this to be so, it

becomes apparent that in properly selecting the activities of an industrial arts program, these three factors should be brought to focus on the particular community concerned, thereby providing the child with a more meaningful educational program.

The problem considered herein, therefore, is to choose from the long list of industrial arts activities, those particular ones which would best suit the needs of the youth of Box Elder County through an application of these three factors.

Plan of procedure. In the words of Margaret Alltucker of the research division of the National Education Association (12 P.81)

> . . . the first step in curriculum construction is the careful formulation of the general and specific aims and objectives of education. They must be ever present in the mind of the classroom teacher; for it is not possible for her to give adequate guidance to the learning processes of children unless she knows what is their normal and legitimate goal. In other words, the objectives in education are chosen and formulated in order to answer why we do what we do in teaching.

With this in mind, the first step in the solution of the problem was to search through available materials to determine the aims and objectives of education both in general and in industrial arts education.

The second step in solving the problem was a study of the child to determine what would be best in the industrial arts field of education for the child in the rural schools of Box Elder County: for in the words of Miss Alltucker (12 P.103)

> All writers would agree that no satisfactory curriculum can be formulated without considering the pupils for whom it is made.

In studying the child, in relation to the curriculum, it was planned to study the child first rather briefly in respect to his general developmental pattern, what he was, what he is at the point of life

dealt with in this problem, and what he will be a few years hence. This will give some insight into the oneness of growth represented by the child that must be considered in a study of the childs interests and needs. Following this, it was proposed that the child be studied in respect to his wants, interests, and desires in the particular community concerned. The latter study was proposed to be made through the use of questionnaires and the former from available written materials.

In an opinion survey made by the National Education Association, it was found that among superintendents and educations officials throughout the nation, (12 P.200)

> The majority opinion seems to be that the environmental conditions surrounding pupils must be made the basis of approach to larger experiences to be developed through the curriculum . . An analysis of the study shows a need for adaption of the curriculum to the community.

The plan, therefore, in this study was to study, through the use of the questionnaire, the rural communities of Box Elder County in order to ascertain what the community desires in the curriculum would be.

Another factor placed as important in development of the curriculum is "Recurring Life Situations." These are the situations that invariably confront the individual in his every day life and must of necessity be solved to provide a full rich life in our society. To bring this factor to bear on the problem herein discussed, it was planned that a review of literature be made; for it seems logical that the persons who study life and its requirements in respect to education would know best what will be required to meet our every day requirements in life.

It is recognized that in this last aspect of curriculum development the aims and objectives of education discussed at the beginning would have a vast amount of influence. The two, therefore, would tend to overlap.

In our present industrialized society there are increasingly complex problems which become more and more evident as we advance toward a higher civilization. These "Recurring Life Situations" cannot be disregarded in a plan of curriculum construction.

As Caswell has stated: (7 P.212)

> With the increasingly complex problems that we face in the future, it becomes evident that the program of the school must bear more directly on the problems of our times if a significant contribution to their solution is to be made. No longer is mere literacy adequate; no longer will the study of Indians and Eskimos suffice. If we are to save our soil and use our coal and oil and forests wisely; if we are to extend individual rights guaranteed by democracy to minority groups; if we are to protect our government from subversive acts; if we are to have an adequate diet; if we are to protect life on our highways; if we are to meet the multitude of problems which our country faces, instruction in the schools must deal with these matters and the curriculum must be so organized as to call them to direct attention. Chance cannot be relied upon to achieve this important end.

Thus we see a need for more than filling the present wants and desires of the individual and community. This adds a must to the plan of curriculum construction. Let it not be misunderstood, however, that it is proposed that the great social problems of our times be imposed on the children without regard to maturity and interests and needs. It is a psychological principle that experience which is meaningful and valuable arises from the every day experiences of the individual. The teacher, in an effort to fulfill her responsibility to the child, must be ever alert therefore to capitalize on the immediate felt needs arising from the every day experiences of the child.

There is perhaps no one who can say definitely what situations a child will face as he grows into maturity and beyond. All we can do is predict what situations he will most likely meet from an analysis of what others have met in their journey through life; consequently the writer

feels that to determine most adequately what consideration should be given this aspect of curriculum development a study should be made of literature written by those who have made it their life's work to answer questions such as this.

The following review of literature was made, therefore, in an effort to determine what, in the opinion of specialists in the field, the curriculum should include to best meet the requirements of life in our modern society.

Previous studies

Jay found, in a study of teachers attitudes in the neighboring county of Cache, that: (24 P.60)

> Apparently the teachers of Cache County Schools feel that industrial arts should be made available to a combination of boys and girls together and that the program should be more concerned with creative expression than it is with developing manual skills.

In a study made by Peterson in the above mentioned county, a need is shown for utilizing the community resources, suggesting the importance of trips to local industrial establishments. Miss Peterson, in her concluding remarks, states: (34 P.64)

> A function of a rich school curriculum is the development of insights into community life in order that all children will understand their community and become responsible citizens. Proper utilization of all resources increases the value within the community in sustaining life and culture.

In a study made by Ralphs, which was concerned with school administrators as well as teachers, it was found that administrators prefer that the regular classroom teacher teach the industrial arts in the classroom in conjunction with the other subjects.

Ralphs concluded further that: (35 P.58)

> An adequate program for industrial arts in elementary schools of Utah must begin with the needs and interests of the child and must recognize the individual differences of children in this respect.

Frank Cyr and Shirley Cooper of the rural service department of the National Education Association a few years ago conducted a series of eight conferences with rural representatives from forty states on what farm leaders want schools to teach. They discovered that these leaders wanted nothing more than objectives of general education could give them if general education became truly functional.

Books and magazines

The question frequently arises, "Should industrial arts be taught as a separate subject matter?" In answer to this, Arthur W. Earl makes the following statement: (10 P.65)

> The teaching of industrial arts in isolation is the result of an old tradition founded in the days when all subjects were taught separately. This practice may have been acceptable in the past when a course was considered to have served its purpose if it taught children some facts and skills. Today, however, when everything that happens in the world is so intimately bound up with problems of daily living it is artificial to isolate industrial arts from other learning experiences.

Fredric G. Bonser goes into great detail on the matter of industrial arts in the elementary schools. Of it he states: (3 P.17)

> It is the purpose of the elementary school to provide experience in meeting the common needs of all regardless of sex, vocation or social status. It's content is made up of those activities in which everyone must participate with a like degree of knowledge and skill and with like attitudes and appreciations in order that there may be a unified efficient and stable social life. Its activities, values and ideals may be regarded as the common denominator of life for the whole nation.
>
> To develop as much efficiency and satisfaction as possible in meeting all the common needs before the period is reached when different needs become so prominent that differentiated school work is required to meet them is the work of the elementary school.

In defining the industrial arts, Bonser states that it represents the changes made by man in the raw products of nature to make them more usable as food, clothing, shelter, utensils, tools and machines, and records of his experiences, as books and periodicals. Quoting from

Bonser: (3 P.19)

> . . .all are constantly using the products of these changes and information is needed as to the value of materials and methods of construction showing how to select and use products, how to help in the regulation of the production and distribution of products and how to know good design in each kind of product. Through participation in securing this information there are developed habits, attitudes and appreciations which contribute very materially in meeting needs for selection and use with efficiency and with economy in cost, time and effort.

Bonser suggests a different approach to industrial arts in the elementary schools than in secondary schools. He states: (4 P.5)

> No discussion of industrial arts in detailed items of purposes, methods and equipment can apply appropriately to the whole range of the public school field. Therefore a separate presentation is necessary for the elementary school.

Bonser divides the industrial arts into two separate kinds of study each having its own specific purpose. (5 P.5-6)

> a. Vocational. The processes of an industry may be studied for the sake of developing skill and efficiency in producing in this particular industry.
> b. General educational purpose. Study of the materials, processes, conditions of production and the purchase and use of the products of the more important industries for the values which such study affords in ones every day life regardless of occupation.

Lee and Lee in The Child and His Curriculum place the creative activity such as we find in industrial arts as just another part of the general school curriculum. Of it they state: (27 P.219)

> Creative activity may take place at any time or place with any materials. It is not another subject or area or even a separate approach. Every phase of school life should give a greater or lesser amount of opportunity for it.

Hollis L. Caswell on this subject has made the Statement that: (7 P.50)

> . . .the educative experiences of the child at any time should be broad and integrating, and it should be cumulative and continuous from week to week and year to year.

Erickson encourages the teaching of industrial arts in the elementary schools by the regular class room teacher. He states: (14 P.323)

> In the organization of industrial arts activities in the grades below the seventh, formal work with tools and materials is less and less favored and the activity carried on comes under the direct management and supervision of the regular classroom teacher.

To make the industrial arts curriculum complete, it is suggested by most writers that it begin with the first grade and continue through the entire school program. Newkirk and Johnson state: (32 P.17)

> Handwork as applied to the learning processes in the first 3 grades is the initial step in the industrial arts program. It is the introductory phase in the study of industrial arts which is ultimately intended to bring within the range of the child a knowledge of the world in which he lives. This program in the primary grades acquaints the child with ideas and interests pertaining to the environs of his home and neighborhood; it furnishes some knowledge of the industrial activities of people in far away lands. It provides the child with opportunity to become familiar with such materials of industry as wood, clay, paper, and textiles and with the use and care of common hand tools.

Arthur W. Earl made the following statement pertaining to the industrial arts curriculum: (10 P.66)

> Three principal objectives characterize the over all aims of education.
>
> 1. Transmit a way of life.
> 2. Improve that way of live.
> 3. Meet the needs of all individuals with basic concepts of living.
>
> If these objectives are to be achieved the inclusion of industrial arts in general education should be determined by a pattern of sound and timely worthwhile experiences. Basically these experiences must excite the natural interest of the pupil, provide opportunity for progressive development, stimulate the mind to full expression, and give genuine satisfaction for the effort expended.

In choosing the industrial arts curriculum Bonser has said that it is impossible to cover, in the time we have at our disposal, all the industries present in our society. We must limit our study to those which have a fundamental purpose in education. In further explaining what should be considered he states: (5 P.20-21)

> The elementary school devotes its efforts to those elements of study which are of common value to all persons without consideration of sex or occupation. It limits its work to those needs which are common to all in a democratic form of life. This, of

> course does not mean that the individual differences of children are not respected but it does mean that the common elements by which people live efficiently, cooperatively and harmoniously together are the basic materials emphasized. All must know how to read, write and use the general processes of number; all need to know the more permanently important facts and meanings of geography, history, literature and science as these enter into daily life and intercourse. Is there not also a body of experience and knowledge relative to the industrial arts which is of common value to all regardless of sex or occupation? If so, this should properly make up the content of the industrial arts as a study for the elementary schools to that degree in which elementary school children have the capacity for it.

Since the schools in Box Elder County are almost exclusively rural, it is perhaps fitting to mention at this time a statement by Edwin L. Kurth in regards to the rural school curriculum: (26 P.276)

> The goal of general education is to develop happy, useful, successful citizens. To do this education must result in the growth of individuals in their ability to find satisfying solutions to persistent life problems. In general education there should be but one goal for general education for both rural and city life. Rural education must be equal to but not identical with urban education to meet the needs of rural life.

Documentary reports.

The Florida State Guide to industrial arts reads as follows: (16 P.5)

> Every civilization has had its common element. In Greece for example, it was art and language. In Rome it was law and government. The most conspicuous element in our civilization is industry, in which the machine, together with the use of power which operates it predominates. No one can claim to be cultured in his civilization who neglects to study the dominant element in the pattern of its social relationship.

From a U. S. Government report, the planning of an industrial arts program is given as follows: (39 P.17)

> The elementary grades constitute the period of foundational education, of training in the common subjects, of beginnings of concepts of industrial processes and interdependence of consumer and producer. Industry and the machine are prominent factors in our civilization, factors which any plan in education must consider. The complexity of modern

> industry with its constant improvements in methods and materials is difficult for a child to understand without a background of the simple principles and processes underlying it. In the times past, a child through actual participation in home activities acquired a knowledge of individual processes and some appreciation of the value of their products in life. He had a share in the responsibility and, therefore, he knew the amount of time and labor that was required to produce the things his family needed and the tools and processes by which materials were made more usable. He had a well rounded industrial education.
>
> Today opportunities for such first hand knowledge are lacking. The child's experience on the whole is with the finished products.

The article concludes that the industrial arts as a content subject of the curriculum, through giving the child this background, contributes to his understanding of what is going on about him and to his living more intelligently.

From a bulletin compiled by the American Vocational Association, the following eight points are taken as suggestive points to consider in the selection of activities: (1 P.61)

1. Each one should furnish opportunity to develop elementary skills in the use of tools and materials in common use.
2. Each one should provide fundamental principles of construction.
3. Each should present one or more steps in a sequence of difficulties, from simple to complex, in a course of study.
4. Each should be productive of significant related information.
5. Each should be within the physical and mental capacity of the pupil in both skills and related information.
6. Each should have appeal to the interest of the pupil at his level.
7. Each should provide, if possible, the opportunity for expression of beauty through design.
8. Each should serve, above all, as a vehicle in the accomplishment of one or more of the objectives other than skills and information.

The Chicago board of education has published a bulletin on handwork in which they use the term synonymously with industrial arts. In it they urge for correlation of these activities with the other school subjects: (25 P.8)

> Handwork should grow out of the work of the school, out of the problems in geography, history, arithmetic, art and other subjects and should always serve to intensify interest and promote understanding and appreciation, and if it is done merely to keep children busy it is useless.

The objectives of education, it has been said, explain why we teach what we teach in school; therefore it seems that consideration of these objectives becomes a must in curriculum building. The lists of education objectives which follow, both general and industrial arts, therefore, are taken as guiding principles in determining the content of an industrial arts curriculum.

General education.

One of the most popular and probably most far-reaching statements emphasizing an integrated individual-social development, not directed especially at the elementary school but never the less appropriate to it, is the statement of the Educational Policies Commission. Chapters 4 and 5. Purposes of Education in an American Democracy.

According to this commission, the objectives of education fall into four areas.

1. The objectives of self-realization.
2. The objectives of human relationship.
3. The objectives of economic efficiency.
4. The objectives of civic responsibility.

Another statement of purpose of the elementary school appears in one of the Bulletins of the Department of Public Instruction of the State of Michigan. According to this statement: (23 P.13)

> Modern elementary education seeks the well-balanced, rich, personality development of the whole child. Schools have always sought to develop the mental and moral qualities of pupils, but today elementary schools look to the growth of the whole child physical, mental, social, emotional, and spiritual. These ends are not sought merely for their own sake and in isolation, but as closely related avenues of growth toward enriched life for the individual and for society.

From the preceding list of objectives, and various others not included in this thesis, a broader concept of mental development seems to dominate the

elementary education of today. It is still vitally important, of course, that useful facts contained in books become a part of the mental development of the elementary child; however this is not all. Museums, exhibits, industrial, social and cultural institutions and their activities speak volumes to intelligently guided observers. Excursions and field trips bring pupils face to face with ideas at work in the world; thereby providing them with opportunity to exercise initiative, analyze meanings and arrive at judgments. These experiences make the educational plan meaningful to the child and give him a basis for thinking and problem solving.

There is also evidence of a consideration for social development. A knowledge of social institutions functions and activities is one step. Another is actual participation in social life within and without the school to gain experience in the art of social functioning.

Proper emotional balance is also coming to be recognized as a significant part of the child's development. The modern elementary school seeks to give proper attention to this important aspect of child growth. Every opportunity is provided to allow for a normal, well-balanced emotional life. Kind sympathy and a sincere effort to understand every child's likes, dislikes, fears and inhibitions are constant objectives. Promotion of cheerfulness, happiness, frankness and freedom of expression is a part of the program. The development of broad interests, participation in music, dramatics, art and physical activity help to develop a well-rounded emotional life for the child in the modern elementary school.

The school also seeks the spiritual development of the child. The dynamic for promoting the highest possible growth of the child is more than physical, more than mental, more than social. It is spiritual. Happiness is a spiritual quality. Love of the beautiful in music, in art, in nature, in human nature, and in nobility of character is a spiritual quality. These are qualities of

spiritual nature which the modern elementary school seeks to develop.

Obviously, then, modern elementary education seeks a well balanced development of the whole child. His physical, mental, social, emotional and spiritual growth is sought. The effort of the school is to develop these various phases of child growth simultaneously and progressively toward a complete human being worthy of a place in the onward march of human progress.

Industrial arts, as a part of general education subscribes to these many purposes and objectives of education and strives in its line of endeavor to contribute toward the fulfilment of these objectives for the development of better individuals in our modern industrial society.

Industrial arts

It is generally agreed that the first step in any attempt at curriculum construction is the careful formulation of the general and specific aims and objectives of education. Wilber makes the following statement in regard to the function of these specific objectives: (41 P.45)

> It is evident that, if one has objectives, they should be used. It is not sufficient to subscribe to a set of aims and then forget about them, or to keep them in the desk drawer to be shown to those who may be interested. Rather these objectives must become the foundation and bulwark of the whole program.

The following nine objectives are named as those for which industrial arts teachers should assume a large measure of responsibility. They are outcomes toward which such teachers and their subjects can make real and distinctive contribution. The list is not assumed to contain every aim to which teachers may be committed or which they may have elected to share with instructors of other fields. All should feel free to modify or to add to the nine items here presented. Industrial arts teachers must continually ask themselves what changes they are trying to produce in their pupils and to what measurable extent these goals are being attained.

These nine purposes or assumed outcomes of industrial arts work are stated in terms of teacher attempts rather than in the usual terms of departmental or field aims. They should be considered not as nine distinct ends or effects but rather as cumulative and unified. Resourceful teachers will choose among them and will add to them as their own experiences and individual circumstances may dictate.

A summary of these nine objectives as listed in an American Vocational Association bulletin follows: (1 P.51)

1. Interest in industry. To develop in each pupil an active interest in industrial life and in the methods and problems of production and exchange.
2. Appreciation and use. To develop in each pupil the appreciation of good design and workmanship, and the ability to select, care for, and use industrial products wisely.
3. Self-discipline and initiative. To develop in each pupil the habits of self reliance, self discipline and resourcefulness in meeting practical situations.
4. Cooperative attitudes. To develop in each pupil a readiness to assist others and to join happily in group undertakings.
5. Health and safety. To develop in each pupil desirable attitudes and practices with respect to health and safety.
6. Interest in achievement. To develop in each pupil a feeling of pride in his ability to do useful things and to develop worthy leisure-time interests.
7. Orderly performance. To develop in each pupil the habit of an orderly, complete and efficient performance of any task.
8. Drawing and design. To develop in each pupil an understanding of grawings and the ability to express ideas by means of drawing.
9. Shop skills and knowledge. To develop in each pupil a measure of skill in the use of common tools and machines, and an understanding of the problems involved in common types of construction and repair.

A committee appointed by the Commissioner of Education writes: (39 P.18-19)

No attempt is made on the elementary school leve, grades 1 to 6, to cultivate vocational interests or possibilities. The purposes are, rather:

1. To help the child understand what is going on about him in the industrial world.
2. To give him many opportunities to express himself concretely in a variety of media, always expecting that there will be constantly improving technique with maturity and experience.
3. To open a field of leisure-time activities in which he may find an interest.

4. To contribute toward his acquiring the habit of thinking a job through.
5. To further the development of his appreciation of various people in terms of their culture.
6. To help him become a wiser consumer and a more intelligent participant in a society that is markedly industrial.

The problem concerned herein is with the upper elementary grades. In a complete industrial arts program the work in the lower grades would lay the foundation for further studies in the upper grades; therefore the upper grades should, according to a U. S. Government report: (39 P.27)

> . . .help the child to understand something about how and why our machine age has developed, how interdependence has grown with industry, how changes are still being made, and how, despite the changes, many of the processes and principles used in industry today are the same as those discovered and used by early people.

These in brief, are the objectives of industrial arts as a particular subject. Much has been written on how to accomplish these goals, and there is perhaps as much more yet to be written.

With the listing of the objectives of education both general and specific, a definite goal is established for the curriculum both in regards to the whole over all plan and the specific industrial arts phase of the curriculum, and portrays the desires of educational leaders is our modern program of education.

This being done, a study to determine the desires of the child and the community he represents remains the final criteria for the development of a desirable program in industrial arts for the elementary schools of Box Elder County. These two criteria are treated in the subsequent questionnaire studies.

The whole child

In studying the child, one must not lose sight of the fact that the child represents a completeness, a oneness, or what is an even more popular term, a wholeness of growth. Within himself each individual is a complete organic unit and he functions as such in all his activities at all times. When studying the child, therefore, he must be studied from the point of view of the child as a whole.

Gesell says of the child: (19 P.10)

> As early as the eighth week of intrauterine life, the beginnings of the differences between a boy and a girl become recognizable. Long before birth the future infant is already stamped with individuality. Every child is born with potentialities which are peculiar to him or to her. Each child has a unique pattern of growth, determined by these potentialities, and by environment and fate.

Huggett and Millard place child growth or development in cycles: (23 P.286-287)

> Child life from day to day moves through various developmental phases. When the child is born, one cycle of growth most dramatically comes to an end and a new one begins. Throughout all cycles of development many changes are produced by maturation and reflect themselves in changed velocities of growth. All the while there is a unity in the whole process. One division or cycle overlaps another; and in spite of the fact that it is as yet impossible to ascertain definite relationships between cycles, never the less a certain fundamental individuality underlies the total pattern. All this brings a warning. The child must be studied in relation to what he was and to what he will be at any future time.

In answer to the question, "What was the child and what will he be?" Gesell places the child in a developmental cycle which is pictures in seven different stages. (19 P.10)

1. Stage of the embryo (0-8 weeks)
2. Stage of the fetus (8-40 weeks)
3. Infancy (from birth to 2 years)
4. The pre-school age (2-5 years)
5. Childhood (5-12 years)
6. Adolescence (12-20-24 years)
7. Adult maturity.

In speaking of the child at that point in life when he enters into the childhood stage, which includes the span of elementary school life, Gesell has made the following statement, (19 P.14)

> At the age of five he has already come a long way. He has surmounted a hilltop. He is no longer a mere baby. "He is a little fellow !" He is almost self-dependent in the elementary routines of life at home. He is ready for the simple community life of a schoolroom. In his emotional traits, in his general intelligence and adaptability he evinces a well organized, well rounded action-system. It is as though nature had momentarily completed what she undertook to create. The five year old at least presents a preliminary version of the ultimate adult. Perhaps he registers in a dim way what was once a plateau of full maturity in the remote racial past.

This is the child as he enters into elementary school life. This study, however, concerns itself with the child as he reaches the upper limits of childhood and is about to pass on to another stage or cycle of development, that of adolescence. At this particular time (ages 10-12) we find a divergence between sexes and the tendency toward segregation is quite well defined. Girls, somewhat earlier than boys, are entering into the prepubertal period and changes in body proportions, metabolism and endocrine secretions are noted. These changes, of course, become more marked as adolescence continues.

Of this adolescent period into which the child is entering Gesell says (19 P.15)

> For the boys the stage of adolescence lasts about ten years, for girls a year or two less. Adolescence, therefore, is almost as long as infancy and childhood combined. From a cultural standpoint it is an extremely critical period; because it is the time of life when youth is progressively initiated into the responsibilities of citizenship and into the meaning of marriage. With marriage the first great sector of the cycle of development comes to a full circle. For then a new home is founded. A new infant is born. A new generation starts on its life career, which again pursues the age old sequence of infancy, childhood, adolescence and parenthood.

This is the child with whom the schools are dealing. This is the individual for whom the school is functioning. The curriculum, being the entire course

of action in the school must design itself to the task of guiding the child through his developmental cycle.

In the words of Gesell: (19 P.15-16)

> We can scarcely expect the carefree child to contemplate the full sweep of this cycle of development. He is deeply immersed in the present. Parents and teachers must make up for his lack of foresight. Being adults they can better understand the scope and the trends of the cycle. They can have confidence in these trends; they can use knowledge and skill to direct the trends. In countless ways they can give infant, child and youth intimations of the future which is in store.

It is seen then in the pupil of the upper elementary grades an individual just completing one cycle of development and entering into another. Here, the pupil will be characterized by and large as being relaxed, and casual yet alert. He has himself and his skills in hand; he takes things in his stride; he works with executive speed and likes the challenge of mental arithmetic. He often shows the capacity to budget his time and energy and his general behavior pattern is more modulated.

In speaking of the ten year-old, which would include most pupils in grade five Gesell says: (19 P.214-215)

> Individual differences, apparent at nine years, become still more manifest at ten. The ten year-old gives a fair indication of the man (or woman) he is to be. Talents now declare themselves, particularly in the realm of creative arts. Giftedness in personal social behavior also reveals itself, if we take pains to read the subtler emotional patterns of the child. He may show fineness of character, graces of deportment, executive ability, perceptiveness of interpersonal relationships, and a wide range of personality traits which have great prognostic impost as to his potential vocation and career. In the management of interpersonal relationships he may already show a kind of skill and a sense of justice which signify capacity for leadership. All special skills should be recognized, not for purposes of prevocational training but for reasons of psychological hygiene.

Thus it is seen, in the pupils of the upper elementary grades, marked individual differences which force us to stay with broad rather general conclusions; however, as was stated above, the child has a sense of justice

and can be motivated to action. This is the great task of the teacher; to add the sugar and spice to the curriculum in order that it may become sweet to the taste.

As has been previously indicated, the child's interests, wants, and attitudes will change as he grows toward maturity. The boy at six, for example, shows a marked interest in transportation and construction, besides a very genuine interest in electric trains. The boy at nine, on the other hand, is more interested in bicycling, roller and ice skating, swimming, skiing and coasting. The nine year old is setting his mind to the task of improving his skills.

This being the case, the writer feels it necessary to determine the wants of the individuals in an industrial arts program; for as most educational theorists have emphasized, the merits of intrinsic rather than extrinsic satisfaction should be sought. The two extremes may be illustrated by a ten year old child reading a story for pleasure and reading the bible for money. Too often we as teachers are guilty of the latter.

Thorndike says: (38 P.153)

> If by a miracle the learning and work which the world now gets done by social forces acting upon individuals from outside (by laws, customs, wages, profits, persuasion, approval, etc.) could be done for intrinsic interests, each person's inner choices harmonizing perfectly with his allotted duties in an automatic paradise, the world would, as suggested, be much happier.

The ensuing questionnaire study was made, therefore, in an effort to determine the intrinsic interests of the child for whom this program of industrial arts is being built.

The local child

In the beginning, it was proposed that in order to determine the wants peculiar to the pupils in this area a questionnaire would be constructed and administered to a sample group of pupils from this particular region. This questionnaire was devised in the following manner.

To determine the criteria by which the pupils could evaluate the activities under consideration, thirty pupils of grade five, six, and seven were asked the question, "What do you think should determine what you should be asked to study in school?" In summarizing the answers, which varied in length from a few words to a few paragraphs, the writer found that most pupils emphasized two criteria:

a. Those things which are useful or worthwhile.

b. Those things that are interesting.

In response to this the writer gave a list of forty three industrial arts activities to a sample group of pupils of grades five, six, seven, and eight, and asked them to evaluate the activities according to the previously determined criteria.

These forty three activities which were used throughout the entire survey both for pupils and adults were chosen by the writer after an extensive study was made of available literature containing lists of activities either being used or suggested for use in building an industrial arts program for the elementary schools. After compiling an extensive list, too numerous to include in a good questionnaire, the writer found it necessary to summarize the different activities into a smaller and more convenient list. This was done by choosing carefully forty three of the more general activities given. It was felt that by so doing an all inclusive group was obtained, for all the activities which were omitted from the final forty three could, in the opinion of the writer, be included in one or more of those activities retained. In this manner it was felt that an evaluation would be made of a good majority of the possible activities that would be considered in developing a good industrial arts program.

In an effort to determine the reliability of the questionnaire prior to its being administered, the test retest method for determining reliability

was used. Thirty four fifth grade pupils of the elementary school at Garland, Utah, were used as subjects for the testing. The questionnaire was given twice to the same group of pupils approximately three months apart, and the scores of the two sets of questionnaires were then compared to determine the reliability. Truman L. Kelly has suggested that in determining the status of a group on a subject a minimum reliability coefficient is .50; therefore since none of the forty three items fell below .50 in reliability, it was felt that a satisfactory questionnaire had been constructed.

This questionnaire was then administered to a group of ninety four pupils, 53 girls and 41 boys of grade five, six, seven, and eight who represented five rural communities of Box Elder County, Utah. In it the pupils were asked to evaluate the forty three industrial arts activities according to their interest and their opinion as to its usefullness which in general meant, "Would the activity give them something they could benefit by either now or in the future?"

The writer administered the questionnaire in each case and special care was taken to avoid in any way the arousing of pupil interest in any particular activity. The pupils were encouraged to give as much thought to the different activities as they desired. No time limit was set and hurrying was discouraged throughout the entire procedure.

Despite the fact that pupils on this grade level are expected to be able to read and comprehend with much skill, it must be recognized that, due to differences in ability, there will be a small percentage of the pupils in each grade who will be unable to comprehend reading of this matter; therefore all instructions were read aloud and any questions or misunderstandings discussed with the group prior to beginning the questionnaire. Each activity was then read aloud and, if not entirely understood, discussed with the group before going on to the next. After completing the entire questionnaire, the

pupils were given as much time as was needed to go back over the list and recheck their answers. In this way, it was felt that a more valid survey was made.

In showing the results of the survey, it was felt that a clearer concept would be obtained if the quite lengthy questionnaire was broken down into small units. Bonser has broken the industrial arts activities down into six units which include within their bounds all forty three activities used in this questionnaire; therefore the activities used are grouped in these six units, food, shelter, clothing, utensils, records, and tool and equipment, and the results of the survey listed accordingly in six separate tables.

Table one contains the area of food and includes the first seven activities from the questionnaire.

Table 1. Pupil opinion of industrial arts activities in the area of food.

Activity	Interesting Not useful 1	Interesting Useful 2	Useful not Interesting 3	Not interesting Not useful 4
1. Experiment with yeast.	25	18	24	28
2. Prepare dried food.	6	25	39	34
3. Prepare the store foods.	9	49	19	17
4. Test foods to discover their content.	11	46	23	14
5. Prepare foods of primitive man.	12	40	21	21
6. Plan meals.	9	51	17	17
7. Prepare frozen foods.	8	38	31	17

In this group there is an indication that the opinions vary quite extensively on the different activities; however there is a noticeable tendency

on numbers three, four and six in which nearly one half or more of the pupils indicated the activities as being both interesting and useful. On the other hand, activities one and two show a greater number of pupils indicating them as both uninteresting and useless. When the total scores in each column are averaged up, however, the highest average is on column two which indicated that 38.14 pupils, or 40.6% of the total group checked the activities in this area as both interesting and useful.

Table 2 covers the unit on clothing which includes the activities from number eight to number fifteen.

Table 2. Pupil opinion of industrial arts activities in the area of clothing.

Activity	Interesting not useful 1	Interesting useful 2	Useful not interesting 3	Not interesting not useful 4
8. Make various kinds of fabrics.	5	52	21	16
9. Make models of ancient and modern looms.	7	59	13	15
10. Make clothing from various kinds of materials.	7	52	10	25
11. Experiment with fabrics to find their distinguishing characteristics.	8	52	13	22
12. Repair articles of clothing.	12	29	29	24
13. Operate a sewing machine.	8	47	10	29
14. Collect samples of kinds of fabrics.	11	34	15	34
15. Make fabric designs.	13	51	8	22

In this group there seems quite a definite tendency for pupils to prefer these activities, for with the exception of numbers twelve and fourteen, one-half or more of the pupils participating checked the activities in this

group as being both interesting and useful. The total average score for this group indicates that 46.88 pupils or 49.9% of the entire group participating felt that the area of clothing was both interesting to them and useful.

Table three shows the results of the survey in respect to the area on shelter and includes the activity numbers from sixteen to twenty five in the questionnaire.

Table 3. Pupil opinion of industrial arts activities in the area of shelter.

Activity	Interesting not useful 1	Interesting useful 2	Useful not interesting 3	Not interesting not useful 4
16. Examine different kinds of homes.	11	52	19	12
17. Make models of homes.	4	74	10	6
18. Paint and paper.	4	60	15	15
19. Make articles of furniture and rugs.	3	73	10	8
20. Make models of primitive homes.	3	61	15	15
21. Make model heating and lighting systems.	5	50	21	18
22. Make lumber.	19	28	19	28
23. Collect samples of kinds of lumber.	23	33	17	21
24. Make minor home repairs.	12	41	19	22
25. Work with different kinds of building materials.	7	76	6	5

Here again the majority of the activities are, in the opinion of the pupils participating, both interesting and useful. Numbers seventeen, nineteen, and twenty five seem to be especially preferred for three fourths or more of the pupils indicated that they thought these activities were both

interesting and useful. The total average of this group again shows that most of the pupils are interested in this sort of activity, for 60.89 pupils or 64.8% of the total group participating felt that the activities in this area were both interesting and useful.

Table four concerns itself with the unit on utensils and includes the activities from number twenty six to thirty in the questionnaire.

Table 4. Pupil opinion of industrial arts activities in the area of utensils.

Activity	Interesting not useful 1	Interesting useful 2	Useful not interesting 3	Not interesting not useful 4
26. Make dishes.	3	71	0	20
27. Make articles of pottery.	8	66	3	17
28. Make baskets, boxes, vases, etc.	3	65	5	27
29. Make utensils from various materials. (metal, plastic, wood, etc.)	4	84	6	0
30. Decorate vessels, such as vases, jars, etc.	7	74	4	9

In this table it is again quite evident that the pupils have a favorable attitude toward the activities, for in every case in this area there were more than two thirds of the pupils who made column two their choice. Activity number twenty nine was especially well liked for eighty four of the total ninety four pupils participating checked it as being both interesting and useful, and no person checked the last column in this activity. The total average in this area shows that 72 pupils, or 76.6% of the total indicated the activities in this area to be both interesting and useful.

The activities from number thirty one to number thirty six make up the area of records. The results of the survey in this group are shown in table five.

Table 5. Pupil opinion of industrial arts activities in the area of records.

Activity	Interesting not useful 1	Interesting useful 2	Useful not interesting 3	Not interesting not useful 4
31. Make a library	9	47	18	20
32. Use a printing outfit	13	49	22	10
33. Make a book.	11	55	11	17
34. Make cover designs for books.	10	53	6	25
35. Bind books and pamphlets.	4	53	15	22
36. Make paper.	8	62	11	13

Although the tendency in this area is not quite to strong as the previous one, it is still evident that many of the pupils feel that these activities are both interesting and useful. The total in this area shows that 54.86 pupils or 58.4% of the total group felt that these activities were both interesting to them and would give them something they would benefit by either now or in the future.

Table six takes in the remaining seven activities of the questionnaire and makes up the area of tools and equipment.

Table 6. Pupil opinion of industrial arts activities in the area of tools and equipment.

Activity	Interesting not useful 1	Interesting useful 2	Useful not interesting 3	Not interesting not useful 4
37. Practice working with tools of home and community.	11	65	12	6
38. Make models of primitive and modern tools and machines.	11	60	9	14
39. Make models of vehicles.	10	72	10	2
40. Practice operating machines to learn principles of operation.	4	61	15	14
41. Prepare models of modern inventions.	7	62	14	11
42. Make simple tools and machines.	6	64	13	11
43. Work with machines to find how they affect our lives.	14	53	10	10

In this area there is again a strong tendency to favor the activities. The table shows that well over half the pupils checked column two for each activity in the group, and the totals show that 62.43 pupils or 66.4% of the total group of pupils felt that the activities in this group were both interesting and useful.

Table 7. A summary of pupil opinions of Industrial Arts activities.

Activity No.	1	2	3	4	Activity No.	1	2	3	4
1	25	18	23	28	23	23	33	17	21
2	6	25	39	34	24	12	41	19	22
3	9	49	19	17	25	7	76	6	5
4	11	46	23	14	26	3	71	0	20
5	12	40	21	21	27	8	66	3	17
6	9	51	17	17	28	3	65	5	27
7	8	38	31	17	29	4	84	6	0
8	5	52	21	16	30	7	74	4	9
9	7	59	13	15	31	9	47	18	20
10	7	52	10	25	32	13	49	22	10
11	8	52	13	22	33	11	55	11	17
12	12	29	29	24	34	10	53	6	25
13	8	47	10	29	35	4	53	15	22
14	11	34	15	34	36	8	62	11	13
15	13	51	8	22	37	11	65	12	6
16	11	52	19	12	38	11	60	9	14
17	4	74	10	6	39	10	72	10	2
18	4	60	15	15	40	4	61	15	14
19	3	73	10	8	41	7	62	14	11
20	3	61	15	15	42	6	64	13	11
21	5	50	21	18	43	14	53	10	10
22	19	28	19	28					

For listing of activity No. see questionnaire-appendix

1. Interesting, not useful
2. Interesting, useful
3. Useful, not interesting
4. Not interesting or useful

An analysis of table seven reveals that the opinions of the pupils chosen to represent the rural sections of Box Elder County vary on the value of industrial arts activities in the elementary schools; for with few exceptions, every activity had one or more pupils score each column. A further analysis, however, will give the teacher some further light on the pupils evaluation of the activities.

First of all, it is quite evident that there are a few activities which do not appeal to the entire group equally well; for nine activities or 20.9% of the total list had one-fourth or more of the pupils check them as not only uninteresting but also of no value. Two of these activities, 2 and 14, had more than one third of the pupils check them as uninteresting and of no value. On the other hand, seven activities, numbers 17, 19, 25, 26, 29, 30 and 39 had three-fourths or more of the individuals participating check them as being both interesting and useful, and an additional four activities had between two-third and three-fourths of the pupils indicate that they felt the activities were both worthwhile and interesting.

Of the remaining activities, 23 had between one-half and two-thirds of the pupils indicate that they were both interesting and useful. This makes a total of 32 activities or 74.4% of the total list being checked as interesting and useful by more than one-half of the pupils participating.

The remaining activities were felt to be either interesting and not useful or uninteresting but useful. From this it is seen that from the data received, the pupils seem to favor the industrial arts activities and have a slight preference toward a few particular ones.

In the preceeding table one must bear in mind that no distinction is made between boys and girls or between ten year olds and thirteen year olds. It is beyond the scope of this problem to measure interests according to sex or age. The object is merely to determine what the pupils in this area

would prefer most among the many industrial arts activities; and, as has been previously stated, no differentiation should be made between boys and girls. It is further assumed that those who use this information will choose the activities to correlate with the curriculum as a whole. It would be futile, for example, to prepare foods of primitive man just for the sake of participating in the activity. The activity becomes more meaningful if it is taught, for example, with a social studies class where the problem of foodhabits of our ancestors is brought before the class.

THE COMMUNITY

The question frequently arises "should a community survey precede elementary curriculum construction?"

Mrs. Susan M. Dorsey, Superintendent of schools, Los Angeles, California says: (12 P.81)

> In my judgment the adaptation of the curriculum to community needs is the first business of the schools; the old time idea of a purely academic course of study without any regard for the necessities of earning a living and without any consideration for the further education of adults should be a thing of the past.

Dr. Peterson, at the time, head of the Department of Education, Utah State Agricultural College says: (12 P.81-2)

> I would make the curriculum as broad and rich as possible and flexible; and let the adaptation be made by individuals according to talent and choice of vocation. However, in small schools this cannot always be done. Small rural schools are compelled by force of circumstances to have a narrow curriculum.

Much of Box Elder County is dealing with small rural schools; consequently its curriculum is relatively narrow. In light of these and other similar statements it seems quite obvious to the writer that in such rural communities we should allow the community some consideration in planning the activities which comprise the curriculum of the schools; therefore the following survey was made in an effort to determine which of the many suggested industrial arts activities seem to be of most value in the opinion of the citizens of Box Elder County.

From a long list of industrial arts activities which have been suggested and are being used in various schools throughout the nation, forty three activities were chosen. These were chosen in such a manner that they include, as nearly as possible, all the activities suggested. This was done in an effort to simplify the questionnaire as much as possible yet obtain opinions on as many of the activities as was feasible.

After selecting the list of activities to be evaluated, the question arose, "Upon what criteria should the activities be evaluated?"

As has been mentioned previously, every activity and every objective in education should arise from the needs of the individual. These needs as listed by most writers can be summed up and placed into four groups. (41 P.13)

1. Personal needs.
2. Social needs.
3. Civic needs.
4. Economic needs.

Under the heading of personal needs are grouped all such needs as those pertaining to the development of a sound basis for both physical and mental health as well as those which contribute toward the development of such an understanding of the world picture as will enable the child to develop within himself a sound satisfying philosophy of life.

As the child grows and develops from infancy to adulthood, he finds himself involved more and more in a variety of social relationships. These relationships include those with the family and other immediate social groups of both sexes, and out of it develops a definite need for a pattern of behavior which will make for membership in these social groups.

Wilber says: (41 P.14)

> Specifically, he needs to feel that he is accepted as a maturing participant in home and family life as well as in activities with various age groups with which he associates.

During the time the child is growing in relationship with his home, his family, and his immediate social contacts, he is also becoming more and more involved with civic or community groups. Quite early in life he attends church. Later he is enrolled in school, and with it comes the various clubs, gangs, and other such groups common to our present day society.

His needs here are for assurance that he is growing in ability to accept responsibility, that he is being accepted as a member of these groups and that his contributions to these groups are being valued. In the fulfillment of these needs one visualizes the necessity for growth in such social attributes as tolerance, cooperativeness and a social sensitivity.

The needs in these two groups, (social, civic) although sometimes neglected in our efforts to teach subject matter, should not be allowed to slip from the attention of the school. It should be remembered that the whole child comes to school and with him come all his problems. Not just his problems in arithmetic or spelling, but all his problems of home, church, and life in general. Problems in this area need frequently to be solved or teaching becomes a futile task.

Some would place this area of endeavor under guidance or some similar heading, but where ever it is placed it is still part of the whole education program and still the fundamental task of the teacher and the school in general; therefore needs such as these must receive a great amount of consideration in planning the activities which go to comprise the curriculum.

From an economic standpoint the individual has a need for assurance early in life that he is growing toward normal participation in the work of society. He needs to know that there is a place for him in this great economic organization, and to be guided toward an understanding of todays complex and industrialized technology, and toward the selection of a life's work in it.

Breaking this down and speaking in broader terms Wilber says: (41 P.14)

> The activities implied in the meeting of these needs would seem to include most of the educative situations in which a student would normally engage.

These then are the pupil needs which the schools of today are attempting to satisfy. These same needs are the basis for the objectives of education

as listed by The Education Policies Commission namely:

1. Self-realization, personal needs.
2. Human relationship, social needs.
3. Civic responsibility, civis needs.
4. Economic efficiency, economic needs.

Most writers recognize these as being the most far reaching statements of education for our modern schools; therefore it is by these needs that the parents of this community were asked to evaluate the industrial arts activities suggested for use in the field of elementary education.

After the questionnaire was constructed, it was tried and tested for reliability in the same manner as the pupil questionnaire. A group of 46 adults with whom the writer was associated were used in the testing. Upon gaining a satisfactory reliability coefficient, the questionnaire was given to twenty five adults from the communities of Brigham, Harper Ward, Corinne and Honeyville for their consideration. Following this, the same questionnaire was sent to parents residing in the communities of Garland, East Garland, Riverside, Plymouth, Fielding, and Washaki (an Indian reservation).

These ten communities were selected in an effort to obtain opinions of a more representative sample of the people of the county. By testing the first group in and around Brigham, it was felt that opinions would be obtained from people who are more industrial minded since many of them are associated with small local industry or larger government industries in the Ogden area. The other communities were chosen as representative of the smaller agricultural communities who, with the exception of Garland, have little connection with industry except as it affects farm life. Washaki represents the Indian population in the schools.

A total of ninety eight questionnaires were delivered to parents

residing in nine different rural areas, sixty six of these questionnaires were returned properly checked and from those returned the following data were received.

In administering the questionnaire the writer felt that to have the pupil deliver and return the envelope, the parent would feel it more a part of the school and thereby give it more consideration; therefore the students were given full instructions including a knowledge of the content and purpose of the questionnaire and told to deliver it to the parents and to return it when completed. No time limit was set in order to give the parents ample time to think it through; however after two weeks had lapsed the students were reminded to bring in all completed questionnaires and within the next few days the remainder of the returned questionnaires were received and the others were never returned.

In addition to the sixty six questionnaires represented in the following tables, eight others were received not properly scored but containing comments that the writer feels worth some recognition. Of the eight comments received, all indicated a desire to have the activities brought into the schools. Most of the parents (five) felt inadequate to say what the schools should teach, and two felt that since they had no more children entering the elementary school they should not say what the curriculum should be. One of these latter parents however expressed the following opinion, "I would like to see the school work made more enjoyable by bringing in work like this." Such was the opinion of these other eight parents.

The data received from parents in respect to the industrial arts activities will, for the sake of clarity and understanding, be broken down into the six different areas of study as was done with the pupil evaluation, and will be presented in the following six tables.

Table eight contains the first seven activities from the questionnaire which goes to make the area of food. In this area it can be seen that there are some activities which parents feel contribute to some needs more than others; however the greatest number of parents seemed to feel these activities contributed more to the personal and economic needs than any of the others. It might also be noted that the activity of planning meals had no one check it as being of no value; however activity number 5 had one-third of the parents check it as being of little value, if any.

Table 8. Parent opinion of industrial arts activities in the area of food.

Activity	Personal Needs	Social Needs	Civic Needs	Economic Needs	None
1. Experiment with yeast.	36	10	5	19	11
2. Prepare dried food.	37	14	6	32	1
3. Prepare the store foods.	31	13	7	24	4
4. Test foods to discover their content.	37	14	9	20	2
5. Prepare foods of primitive man.	21	6	13	9	22
6. Plan meals.	44	20	10	20	0
7. Prepare frozen foods.	35	12	7	22	4

Table nine which concerns itself with the area of clothing likewise indicated a tendency for the parents to feel that the activities in this group have the most value in fulfillment of the childs personal and economic needs with personal needs being checked by 45.5% of those participating and 35.6% favoring the fulfillment of economic needs.

Table 9. Parent opinion of industrial arts activities in the area of clothing.

Activity	Personal Needs	Social Needs	Civic Needs	Economic Needs	None
8. Make various kinds of fabrics	25	15	6	26	5
9. Make models of ancient and modern looms.	15	16	10	17	11
10. Make clothing from various kinds of materials.	38	15	5	29	2
11. Experiment with fabrics to find their distinguishing characteristics.	33	17	5	27	5
12. Repair articles of clothing.	39	19	6	30	1
13. Operate a sewing machine.	43	19	6	24	1
14. Collect samples of kinds of fabrics.	27	13	7	19	7
15. Make fabric designs.	25	18	6	16	8

Looking at this group of activities individually it can be seen that activities ten, twelve, and thirteen are favored above the others; however none of the activities were checked in column five by a very large group of people. Number nine, the one scored by the greatest number of persons only received eleven scores in column five; therefore it seems that the parents felt this group of activities was of value to their children.

Table ten covers the area of shelter and includes the activities from number sixteen to twenty five in the questionnaire. In this area there is again a slight tendency for the parents to favor personal and economic needs; however in this area there is also a rather large group who feel that the social and civic needs are being contributed to especially in activities sixteen, seventeen, eighteen and twenty four. Activity number sixteen not

only is scored high in the fulfillment of pupil needs, but was another of the few that had no marks in column five. In this area only one activity had a large number of parents feel that it was of no value; that activity concerned the study of primitive homes.

Table 10. Parent opinion of industrial arts activities in the area of shelter.

Activity	Personal Needs	Social Needs	Civic Needs	Economic Needs	None
16. Examine different kinds of homes.	26	19	23	20	0
17. Make models of homes.	26	18	16	19	1
18. Paint and paper.	27	13	15	22	2
19. Make articles of furniture and rugs.	26	12	7	30	3
20. Make models of primitive homes.	25	11	10	4	21
21. Make model heating and lighting systems.	21	11	14	27	4
22. Make lumber.	17	12	10	19	11
23. Collect samples of kinds of lumber.	22	11	13	22	7
24. Make minor home repairs.	33	21	10	22	2
25. Work with different kinds of building materials.	26	14	9	26	3

Table eleven which covers the five activities from twenty six to thirty dealing with utensils shows the parents opinion running in favor of personal, social and economic needs, and again the largest percent of the parents checked personal needs.

Table 11. Parent opinion of industrial arts activities in the area of utensils

Activity	Personal Needs	Social Needs	Civic Needs	Economic Needs	None
26. Make dishes.	24	12	7	26	12
27. Make articles of pottery.	25	16	9	19	4
28. Make baskets, boxes, vases, etc.	26	22	13	17	6
29. Make utensils from various materials. (metal, plastic, wood, etc.)	37	16	11	20	6
30. Decorate vessels, such as vases, jars, etc.	23	18	15	23	1

Table twelve on the area of records did not receive as much response as the other areas, and with the exception of number thirty one, opinions varied quite extensively in all needs except personal. The personal needs in each activity seemed to rate the highest with 39.8% of the total group participating indicating a fulfillment of this need.

Table 12. Parent opinion of industrial arts activities in the area of records.

Activity	Personal Needs	Social Needs	Civic Needs	Economic Needs	None
31. Make a library.	25	25	23	12	2
32. Use a printing outfit.	27	17	17	15	2
33. Make a book.	25	13	9	12	4
34. Make cover designs for books.	22	11	10	14	15
35. Bind books and pamphlets.	32	16	12	16	6
36. Make paper	21	19	7	18	9

In the last table there is again evidence of a rather definite tendency for parents to feel the activities tend to fulfill the personal and economic needs. A total average of each column shows these two leading with 45.7% and 35.6% of the parents indicating these two needs as being most adequately fulfilled by these activities. One other noticeable trend here lies in the fact that five of the seven activities in this group had no parents check the last column.

Table 13. Parent opinion of industrial arts activities in the area of tools and equipment.

Activity	Personal Needs	Social Needs	Civic Needs	Economic Needs	None
37. Practice working with tools of home and community.	32	20	27	24	0
38. Make models of primitive and modern tools and machines.	31	15	22	22	12
39. Make models of vehicles.	28	17	16	29	5
40. Practice operating machines to learn principles of operation.	39	9	18	28	0
41. Prepare models of modern inventions.	40	13	20	31	0
42. Make simple tools and machines.	30	12	13	29	0
43. Work with machines to find how they affect our lives.	37	21	22	26	0

Table 14. A summary of parent opinion of industrial arts activities.

Activity No.	No. times checked					Activity No.	No. times checked				
	1	2	3	4	5		1	2	3	4	5
1	36	10	5	19	11	23	22	11	13	22	7
2	37	14	6	32	1	24	33	21	10	22	2
3	31	13	7	24	4	25	26	14	9	26	3
4	37	14	9	20	2	26	24	12	7	26	12
5	21	6	13	9	22	27	25	16	9	19	4
6	44	20	10	20	0	28	26	22	13	17	6
7	35	12	7	22	4	29	37	15	11	20	6
8	25	15	6	26	5	30	23	18	15	23	1
9	15	16	10	17	11	31	25	25	23	14	2
10	38	15	5	29	2	32	27	17	17	15	2
11	33	17	5	27	5	33	25	13	9	12	4
12	39	19	6	30	1	34	22	11	10	14	15
13	43	19	6	24	1	35	32	16	12	16	6
14	27	13	7	19	7	36	21	19	7	18	9
15	25	18	6	16	8	37	32	20	27	24	0
16	26	19	23	20	0	38	31	15	22	22	12
17	26	18	16	19	1	39	28	17	16	29	5
18	27	13	15	22	2	40	39	9	18	28	0
19	26	12	7	30	3	41	40	13	20	31	0
20	25	11	10	4	21	42	30	12	13	29	0
21	21	11	14	27	4	43	37	21	22	26	0
22	17	12	10	19	11						

For key to numbers see appendix

In analysing table fourteen it is noted that most parents feel that the industrial arts activities contribute mainly to the childs personal and economic needs; however all the activities seem to fulfill enough of the childs needs to justify their being taught in the schools. Number 5 is the only activity which has as many as one-third of the people scoring number five. A further analysis shows that along with activity number five, numbers twenty one and thirty eight are also high in the number of people indicating a lack of value in the activity. These activities all have to do with the study of materials and methods of our ancestors.

It might also be well to note that the people of the county are especially interested in work related to machines, for in the section on machines only five people scored number five and that was on thirty nine which deals with making models; all other activities dealing with machines had no marks on five and the need contributions were rated high.

SUMMARY AND CONCLUSION

The information gathered in this study indicates that there is a place in the general elementary school curriculum for the phases of the industrial arts which are applicable to both boys and girls alike and which lead toward the development of a good wholesome understanding and appreciation of the materials and processes of industry.

The activities to be used in an industrial arts program in the elementary schools should, according to most writers, be chosen wisely and should be determined by a pattern of sound and timely worthwhile experiences. Basically these experiences should excite the natural interest of the pupil, provide opportunity for progressive development, stimulate the mind to full expression and give the pupil a genuine satisfaction for the effort he has expended in bringing the experience to completion.

In planning industrial arts activities for the elementary schools it should be remembered that formal work with elaborate tools and equipment should be avoided, and that the activities be planned in such a way that the regular classroom teacher can manage and supervise the program.

The pupils and parents from Box Elder County who participated in this study have shown a favorable attitude toward the industrial arts activities and have not shown any particular dislike for any of the suggested activities used in this study; however a few activities seem to be favored over others by both parents and pupils indicating a special preference for some of the activities.

The conclusions to be drawn from this study as seen by the writer are:

1. Industrial arts should be an integral part of the upper elementary schools of Box Elder County in order that the needs and interests of the pupils be more fully met.

2. The industrial arts activities should according to literature cited in this study be made a part of the general elementary curriculum taught by the regular classroom teacher.
3. The activities in industrial arts, according to most writers, should be correlated with other activities being carried on in the classroom.
4. Most writers indicate that teachers should take advantage of any local facilities which might contribute toward a better understanding of industry and industrial life.
5. Evidence seems to indicate that an adequate program for industrial arts should begin with the needs and interests of the child and his society and should recognize the individual differences in such a relationship.

RECOMMENDATIONS

While working out this particular problem certain other problems have emerged which, it is felt, would have a bearing on the development of an adequate industrial arts program in the elementary schools of this county. It is felt, therefore, that further study should be made in the following areas:

1. To determine to what extent we are teaching the industrial arts in connection with other phases of the elementary school curriculum.
2. To determine how well prepared the teachers of the county are to teach the industrial arts activities.
3. To determine how well the schools are equipped to handle an industrial arts program.
4. To determine if, as suggested, the activities of industrial arts contribute equally to the needs of pupils of both sexes.

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Dear Parent:

The role of the parents in determining what should be taught in the schools is being recognized more and more in our education program.

The enclosed questionnaire is being sent to you in order to obtain your opinion as to which of the many suggested industrial arts activities you feel are most important to your child.

Your careful consideration will be greatly appreciated in this matter. Kindly fill out the questionnaire according to the directions given and your child will return it to the school.

Thank you,

The needs of students as they are indicated by the findings of science fall into four rather definite classes:

1. Personal
2. Social
3. Civic
4. Economic

These needs are defined as follows:

Personal needs are those needs pertaining to the development of a sound basis for both physical and mental health.

Social needs are those needs which make his feel that he is accepted as a maturing participant in home and family life as well as in activities with the various age groups with which he associates.

Civic needs are those needs which the child must have for assurance that he is being accepted as a member of community groups and that his contributions are being valued.

Economic needs are those he needs to know to make him feel that there is a place for him in the economic organization and to be guided toward an understanding of todays complex and industrialized technology.

The following industrial arts activities are suggested for the elementary school curriculum. It is recognized that parents should help determine the school activities therefore your careful consideration of these activities will be greatly appreciated.

Using the following scale, check the appropriate number or numbers after each activity.

Check No. 1 if you feel the activity contributes to the child's personal needs.

Check No. 2 if you feel the activity contributes to the child's social needs.

Check No. 3 if you feel the activity contributes to the child's civic needs.

Check No. 4 if you feel the activity contributes to the child's economic needs.

Check No. 5 if you feel it makes no contribution to any of these child needs.

	Personal Needs 1	Social Needs 2	Civic Needs 3	Economic Needs 4	None 5
1. Experiment with yeast.					
2. Prepare dried food.					
3. Prepare the store foods.					
4. Test foods to discover their content.					
5. Prepare foods of primitive man.					
6. Plan meals.					
7. Prepare frozen foods.					
8. Make various kinds of fabrics.					
9. Make models of ancient and modern looms.					
10. Make clothing from various kinds of materials.					
11. Experiment with fabrics to find their distinguishing characteristics.					
12. Repair articles of clothing.					
13. Operate a sewing machine.					

	1 Personal Needs	2 Social Needs	3 Civic Needs	4 Economic Needs	5 None
14. Collect samples of kinds of fabrics.					
15. Make fabric designs.					
16. Examine different kinds of homes.					
17. Make models of homes.					
18. Paint and paper.					
19. Make articles of furniture and rugs.					
20. Make models of primitive homes.					
21. Make model heating and lighting systems.					
22. Make lumber.					
23. Collect samples of kinds of lumber.					
24. Make minor home repairs.					
25. Work with different kinds of building materials.					
26. Make dishes.					
27. Make articles of pottery.					
28. Make baskets, boxes, vases, etc.					
29. Make utensils from various materials. (metal, plastic, wood, etc.)					
30. Decorate vessels, such as vases, jars, etc.					
31. Make a library.					
32. Use a printing outfit.					
33. Make a book.					
34. Make cover designs for books.					
35. Bind books and pamphlets.					
36. Make paper.					
37. Practice working with tools of home and community.					

	Personal Needs 1	Social Needs 2	Civic Needs 3	Economic Needs 4	None 5
38. Make models of primitive and modern tools and machines.					
39. Make models of vehicles.					
40. Practice operating machines to learn principles of operation.					
41. Prepare models of modern inventions.					
42. Make simple tools and machines.					
43. Work with machines to find how they affect our lives.					

	Interesting Not useful 1	Interesting Useful 2	Useful Not interesting 3	Not interesting Not useful 4
1. Experiment with yeast.				
2. Prepare dried food.				
3. Prepare the store foods.				
4. Test foods to discover their content.				
5. Prepare the foods of primitive man.				
6. Plan meals.				
7. Prepare frozen foods.				
8. Make various kinds of fabrics.				
9. Make models of ancient and modern looms.				
10. Make clothing from various kinds of materials.				
11. Experiment with fabrics to find their distinguishing characteristics.				
12. Repair articles of clothing.				
13. Operate a sewing machine.				
14. Collect samples of kinds of fabrics.				
15. Make fabric designs.				
16. Examine different kinds of homes.				
17. Make models of homes.				
18. Paint and paper.				
19. Make articles of furniture and rugs.				
20. Make models of primitive homes.				
21. Make model heating and lighting systems.				

	Interesting Not useful 1	Interesting Useful 2	Useful Not interesting 3	Not interesting Not useful 4
22. Make lumber.				
23. Collect samples of kinds of lumber.				
24. Make minor home repairs.				
25. Work with different kinds of building materials.				
26. Make dishes.				
27. Make articles of pottery.				
28. Make baskets, boxes, vases, etc.				
29. Make utensils from various materials. (metal, plastic, wood, etc.)				
30. Decorate vessels, such as vases, jars, etc.				
31. Make a library.				
32. Use a printing outfit.				
33. Make a book.				
34. Make cover designs for books.				
35. Bind books and pamphlets.				
36. Make paper.				
37. Practice working with tools of home and community.				
38. Make models of primitive and modern tools and machines.				
39. Make models of vehicles.				
40. Practice operating machines to learn principles of operation.				

	Interesting Not useful 1	Interesting Useful 2	Useful Not interesting 3	Not interesting Not useful 4
41. Prepare models of modern inventions.				
42. Make simple tools and machines				
43. Work with machines to find how they affect our lives.				