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A Suggested Crafts Program for Wenatchee Senior High School

Doris Backman Kirkpatarick
Central Washington University

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A SUGGESTED CRAFTS PROGRAM FOR
WENATCHEE SENIOR HIGH SCHOOL

A Thesis
Presented to
the Graduate Faculty
Central Washington State College

In Partial Fulfillment
of the Requirements of the Degree
Master of Education

by
Doris Backman Kirkpatrick
March 1965

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Frank Bach, COMMITTEE CHAIRMAN

B. Stephen Bayless

Dohn A. Miller

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

I. INTRODUCTION

In education today much is being written about creativity and the role of the fine arts in the school curriculum. However, it would appear that the role of the crafts as part of the total art program has not been clearly defined nor has there been much research regarding the objectives of a crafts program. In some schools the crafts program is handled by the industrial arts department and in others it falls within the scope of the art department. Few curriculum guides for crafts are available at this time to provide secondary school arts and crafts teachers with methods, procedures and evaluation criteria. At the present the State of Washington does not have a Secondary Art Guide, although one is being prepared at this time by a state-wide committee.

There is an interest among the general population today in do-it-yourself projects for leisure hour activity. However, a lack of mastery of basic handicraft skills and of understandings of principles of design are major handicaps to individual creative achievement for the would-be craftsman (4:9-11). Further, few textbooks on crafts are good sources of contemporary craft project designs and suggest

processes rather than emphasizing good design (17:6).

Hypothesis suggested by a study of the needs and abilities of students enrolled in crafts pointed to the need for the investigation of a sequential crafts program for Wenatchee Senior High School which would correlate design and crafts activities.

A collateral hypothesis was that introductory experiences in each crafts activity would provide greater motivation and stimulate creativity.

II. THE PROBLEM

Statement of the problem. It was the aim of this study to develop experimental teaching methods and procedures in a sequential crafts program specifically designed to utilize analysis of student background and needs and to promote individual creativeness and aesthetic awareness.

Integral to this crafts program was the furthering of skills and facility in the use of various arts and crafts media and tools as well as the development of the ability to plan, execute and to evaluate an experimental problem.

Importance of the study. Harold Taylor has stated that:

One of the unfortunate results of the misunderstanding of the nature of the intellect is that the practice of the arts and the creative arts themselves are too often excluded from the regular curriculum of the college or given such a minor role in the educational process that they are unable to make the intellectual contribution of which they are supremely capable (78:11).

With the current emphasis upon the sciences and academic disciplines, there is a tendency to eliminate the arts and crafts from the high school curriculum as "frills." Research reveals that values gained by adolescents in well-planned arts and crafts programs positively affect their general adjustment (34:4-8; 24:1-8; 47:36; 54:45; 61:35; 71:16-17; 59:75). Craftsmen and art educators stress the unique contributions of the arts to the students: the development of visual awareness, sensitivity to aesthetic factors in the environment, the development of self confidence through constructive activity and the acquisition of skills which can be utilized for meaningful leisure activities (59:122-126; 11:1-6; 4:9-12; 78:11-16; 23:xix-xxi).

Dr. Edwin Ziegfeld calls for more research in art education to assist the arts in maintaining their rightful place in the total school curriculum. Dr. Ziegfeld writes in his "Commentary" in the Ninth Yearbook of the National Art Education Association that "descriptive studies and surveys are essential to provide information for art educators to teach effectively" (86:154).

This study is descriptive in that it analyzes the student enrollment in the crafts classes of Wenatchee Senior High School and describes the program undertaken with them. It is also a survey in that it surveys the literature and guides available which pertain to art programs in general

and to crafts in particular.

Method of investigation. From the wide variety of crafts activities available to the senior high school level, a varied group was selected to be explored during a school semester. Activities were chosen which considered the total educational background of the students enrolled in crafts (see Table II, page 109 and Table III, page 111), which would meet the needs common to adolescents, which were adapted to the development of aesthetic attitudes and which emphasized not only the nature of the materials but also their creative potential. Each activity was introduced by exploratory assignments or projects which were designed to build upon previous learnings, introduce new skills or concepts and to elicit a creative response to the activity.

In the spring semester of 1964 the following activities were explored in the craft classes in the Wenatchee Senior High School:

1. Three-dimensional activities
 - a) Mobiles
 - b) Aggregate sculpture
2. Plastics
 - a) Cast plastics
 - b) Sheet plastics
3. Jewelry
 - a) Enameling on copper

- b) Metal applique
 - c) Setting of "tumbled" stones
4. Textile printing
- a) Stencil printing
 - b) Batik

This basic course in crafts was planned to provide opportunity for students to engage in and to appreciate both two and three-dimensional craft activities and to acquire fundamental techniques and concepts which make creative expression in these media possible.

Limitations of the study. This study was limited to the eighty students in the author's three craft classes at Wenatchee Senior High School. This small sample group represents grade levels ten through twelve in each class. The three classes were homogeneous with regard to previous art and/or craft experience (see Table II, page 109). Art and crafts are electives in the Wenatchee Senior High School.

An analysis of the background of these students reveals considerable exposure to arts and crafts experiences in junior and senior high school but little outside school continuation of art or craft activities by individual students.

In addition, the students taking crafts are, according to school records, not the academically talented students. Therefore, this fact imposed certain limitations upon the

scope of the study. A more complete report on the students is included in Chapter IV.

Another limitation of this study was the use of teacher-made diagnostic art tests. Although these diagnostic art tests were similar in many respects to Guilford's visual creativity tests described in Chapter II, these teacher-made tests did not use Guilford's tests themselves nor their scoring.

The diagnostic art tests were developed empirically for this particular student population. They were not validated through testing other groups. Criteria for evaluating these problems were set up by the author and the consultant. However, due to the nature of the problems, totally objective scoring was not possible.

It was not the aim of this study to develop diagnostic art tests applicable to all crafts programs; therefore, these tests were used only as indices for the measurement of each student's growth and achievement in the school term. These tests are described in Chapter III.

III. DEFINITIONS OF TERMS USED

The following terms are defined as used in this study.

Crafts. The term crafts encompasses the media of paper, weaving, decorated fabrics, leather, sculpture, plastics,

clay, mosaics, jewelry and metalworking. Sometimes this class is titled arts and crafts because there must be art in crafts or it becomes the simple acquisition of technical skill. "Artistic craftsmanship calls for observation, imagination and comparative judgment in the use of tools, materials and ideas. It establishes coordination between the mind and the hand and satisfies the urge that is innate in every individual to create and express ideas in concrete form" (15:iii). Craft experiences provide for active participation by the student rather than passive absorption.

Design. Design is a manifestation of order and organization and is an integral part of nature and of man-made creations; without it there is no art either in nature or in man's original expressions (23:285-288). "A sense of design, like the need for personal expression, is inherent in man and, if given full opportunity for development, should become apparent in the work of each pupil" (1:9).

More clearly related, perhaps, to the crafts is the definition of design by the sculptor Max Bill: "Good design in an article is a direct reflection of the purpose and quality of that article" (7:47).

Design has two major characteristics: (1) functional design which means the form derived from the function or the materials used, and (2) applied design which is the ornamentation or enriching of a surface (23:313-314).

Creativity. This term means that process through which man releases and develops his powers of observation, imagination, feeling, and perception through sensitive exploration and experimentation with line, form, color and materials. "The student is creative when he is capable of reacting spontaneously, freshly, and independently to a new situation as it emerges in experience" (78:55). The scope of the term creativity is covered more thoroughly in Chapter II.

Aesthetic awareness. In the arts and crafts emphasis is placed upon the discovery of aesthetic factors in the student's environment. The student can develop the understanding that art is in his school, his home and the community through study of nature, reference to current art and craft magazines, looking at exhibits, visiting museums or stores where fine objects are on display and by consideration of the impact of art upon his culture today as well as other cultures past and present. Art does not exist only in museums but is an integral part of everyday life (23:xix-xxi; 73:21-23).

Adolescent youth. The period of adolescence in youth is a period of rapid growth, sometimes puzzling changes and conflicting emotions. Boys and girls in grades ten through twelve vary in their stages of maturation through early, middle and late adolescence. Most students however, in senior high school, have reached middle or late adolescence.

As they mature, these pupils show greater emotional balance, more self-assurance, a longer attention span and greater precision in their work.

Adolescent needs. The word "need" as applied to adolescents is an inclusive term to embrace drives, impulses, goals set, urges, motives, cravings, desires, wants and wishes. According to Howlett a summary of the needs of adolescents would include:

1. Family life and home-making
2. Healthful living
3. Intellectual skills
4. Vocational preparation
5. Consumer efficiency
6. Civic responsibility
7. Happier human relationships
8. Wholesome leisure
9. Aesthetic appreciation and expression
10. Ethical and spiritual values (41:146).

CHAPTER II

REVIEW OF THE LITERATURE

I. THE ROLE OF THE ARTS AND CRAFTS IN EDUCATION

In newspapers, lectures, popular publications and educational journals, critics of the American educational system have called for greater emphasis upon the sciences and mathematics since the Russian Sputnik was launched. It has been fashionable to criticize the humanities and especially the arts as "frills" and to seek their de-emphasis in the school curriculum (16:18; 45:1; 78:9-12, 55-59).

At this same time, other writers decry the lack of creativity or, rather, the conformity found in our society. It has become popular to mention the importance of recognizing the creative potential in students and the need to develop this valuable resource (12:2; 29:23-24; 49:15-17, 69).

It appears, therefore, to many educators that there are three needs in art education today: (1) a need to re-evaluate the role of the arts and the crafts in the curriculum and to assess their value to the individual and to his society, (2) the need to find out what arts and crafts programs are being offered in our schools today, and (3) the need to develop teaching methods in arts and crafts to develop the varied creative abilities of each student (12:2; 29:23-24; 73:21-23; 86:154).

In our present educational system everything points toward learning, which in most instances means the acquisition of factual information and the accumulation of knowledge with little emphasis upon the growth of the individual's sensibilities, his cultural and spiritual qualities and his creative powers (47:2).

Professor Oliver W. Larkin of Smith College writes that:

One reason why the visual arts have a relatively unimportant place in education is that our industrial democracy with its emphasis on the so-called practical has failed to recognize their value, their necessity . . . (46:211).

Professor Larkin finds that one of the basic obstacles to adequate art instruction in public schools is:

Our current anxieties which tempt us to emphasize those disciplines vital to our political survival. We call for more and better mathematicians and physicists, for more history and social sciences to shape intelligent citizenship, and in the pursuit of these admirable aims we forget that the purpose of education is the development of the whole individual . . . (46:212).

Harold Taylor defines some of the misunderstandings which exist today in the education field regarding the relationship between art and the intellect. He states that:

The trouble lies in thinking about art the way most people think about the intellect. It is not what they think it is.

This would not be quite so serious a matter if it were not taken so seriously, especially by educators and those who urge their views upon educators--that is, I suppose, the rest of mankind. If thinking is an activity which takes place in a separate faculty of the intellect, and if the aim of education is to teach people to think, it is therefore natural to assume that education should

train the intellect through the academic disciplines. These disciplines are considered to be the subject-matter for intellectual training, and they consist of facts and ideas from the major fields of human knowledge, organized in such a way that the intellect can deal with them, that is to say, they are organized in abstract, conceptual, logical terms. It is assumed that learning to think is a matter of learning to recognize and understand these concepts. Educational programs in school and college are therefore arranged with this idea in mind, and when demands for the improvement of education are made, they usually consist in demands for more academic material to be covered and more academic discipline of this kind to be imposed. It is a call for more organization, not for more learning (78:10).

Dr. Taylor concludes:

One of the most unfortunate results of this misunderstanding of the nature of the intellect is that the practice of the arts and the creative arts themselves are too often excluded from the regular curriculum of school and college or given such a minor role in the educational process that they are unable to make the intellectual contribution of which they are supremely capable (78:11).

In his recent report on the American secondary schools, Dr. James Conant, in calling for major revisions of emphasis in the school curriculum, recommends that "all students should be urged to include art and music in their elective programs" (14:49). He also states in his recommendations for the academically talented that their programs should include art or music in addition to their strong academic courses (14:57).

In his book Art and Technics Louis Mumford points out the number of contradictions and problems which exist in our society today. He believes that:

The relations between art and technics give us a significant clue to every other type of activity, and may even provide an understanding of the way to integration. The great problem of our time is to restore modern man's balance and wholeness: to give him the capacity to command the machines he has created instead of becoming their helpless victim, to bring back, into the very heart of our culture, that respect for the essential attributes of personality, its creativity and autonomy, which Western man lost at the moment he displaced his own life in order to concentrate on the improvement of the machine. In short, the problem of our time is how to prevent ourselves from committing suicide, precisely at the height and climax of our one-sided mechanical triumphs (63:11).

Mr. Mumford asserts that the purpose of the series of lectures contained in his book is:

An attempt to vindicate the function of art, in the face of an age that has committed itself, massively and one-sidedly, to the conquests of technics. I distinguished art from technics mainly by emphasizing that art springs spontaneously, even in infancy, from the desire for individuation and self-expression--a desire that needs for its fullest satisfaction the warm-hearted attention and loving cooperation of others. In such a fashion art becomes a vehicle for transmitting a multitude of funded values and meanings that spring from the very depths of the self . . . and if this is a sound view of art, then a civilization that attempts to put art to one side or to make it a mere servant of practical needs--in the way that art is now used for advertisement--is actually setting aside and degrading an essential part of the nature of man (63:33-34).

Dr. Edwin Ziegfeld does not speak of the arts and crafts in education alone, but speaks of the arts and crafts in life. He says that "art cannot be discussed apart from the life and ideas of the people who produce it, for it speaks of life and ideas with both eloquence and passion" (87:18). In discussing the technological developments and social advances brought about through industrial development he suggests that "the

machine, besides being a force for good, is also a force for evil--and that unless we are aware of both its potentialities we are apt to be seduced by its efficiency and be unaware of its other effects on us" (87:19). He points out that: "The artist, in a sense, has taken a new role, that of being a spokesman for humanizing values of society. He points out cultural dangers, he emphasizes values which tend to be slighted or ignored" (87:19).

Dr. Ziegfeld presents three emphases as characterizing current art education: (1) a stress on individuality and expressiveness, (2) an emphasis on freedom and inventiveness, and (3) a concern with process (87:19). He states that:

An emphasis on individuality is essential because such developments as mass production and mass media of communication bring with them tremendous pressures for conformity. Art, with its possibilities for individualized statement, thus becomes a basic educational necessity (87:19).

Dr. C. D. Gaitskell speaking before the International Society for Education through Art listed three major influences that have affected art education in North America: (1) the universal tradition of art, (2) the application of psychological and philosophical theories to teaching, and (3) the democratic credo. He states that art education today is a result of an evolutionary process. North America inherited the Greek-Roman-Renaissance background of art, was influenced by European pedagogical thinkers such as Rousseau, Pestalozzi, Herbart, and Froebel, and came to be dominated by North

American educational thinkers such as John Dewey and adversely affected by the psychologist E. L. Thorndike (27:20-22; 26:4-9).

Art education today according to Dr. Gaitskell appears to have the following six characteristics:

1. There is a widespread belief in the creative ability of all children.
2. Skills are taught in relation to the expression, not in isolation. It is believed that skill in art must develop as an integral part of an expressive artistic act, rather than by means of a mechanical exercise.
3. Step-by-step methods of teaching are being replaced by freedom of thought.
4. Stimulus is found in the pupil's life and his response to it.
5. Appreciation of art forms is taught in relation to the production of similar forms. Emphasis is placed upon the development of taste.
6. There is a belief that art can help develop worthy citizens. Through art an attempt is made to develop people who can harness and direct their emotions, relate themselves to their environment and society, and bring order out of disorder (26:4-9; 27:22).

The late Viktor Lowenfeld in his many writings stressed the concept of the whole child and the value of the creative process. He stated that:

While our high achievements in specialized fields, particularly in the sciences, have improved our material standards of living, they have also diverted us from those values which are responsible for our emotional and spiritual needs. They have introduced a false set of values which neglect the most inner needs of an individual. In a well-balanced educational system, in which the development of the whole individual is stressed, his thinking, feeling and perceiving must be equally developed in order that the potential creative abilities of each individual

can unfold. Art education, introduced in the early years of childhood may well mean the difference between a flexible, creative human being and one who, in spite of all learning, will not be able to apply it and will remain an individual who lacks inner resources and has difficulty in his relationship to the environment. Because perceiving, thinking, and feeling are equally stressed in any creative process, art may well be the necessary balance for the child's intellect and his emotions (47:2).

Lowenfeld was responsible for pioneering work in the development of systematized criteria as evaluation guides for use of teachers in their classrooms. These criteria are adjusted to the various developmental stages, from scribbling to adolescence. Lowenfeld organized these in such a way that they cover the seven areas of growth that he found in children's drawings, all seven of which he stated are important in an art education which claims to educate the whole child.

In the last few years several art educators have begun to challenge some of the Lowenfeld concepts, among these art educators are Victor d'Amico and Harold McWhinnie.

Harold McWhinnie states that there are three forces in education today which make the uncritical acceptance of Lowenfeld untenable:

1. The drive for excellence in education and the re-emphasis on subject matter content in all areas.
2. The wide-spread disfavor toward the idea of the child-centered school and the child-centered curriculum.
3. The increase in the level of sophistication in research on creativity and perception have offered us new hypotheses (58:35).

McWhinnie asserts that there are four major weaknesses in Lowenfeld's Creative and Mental Growth:

1. An uncritical acceptance by Lowenfeld of the research from psychological sources upon which he bases much of his theory.
2. Serious lack of documentation by Lowenfeld for many of the studies which he cites and the statements he makes based upon this research.
3. A highly emotional commitment to the "whole" child. Lowenfeld let his emotions interfere with the critical investigations of this theory.
4. The highly authoritarian manner in which he stated his assumptions as unquestionable truths rather than tentative hypothesis (58:35-36).

Specifically regarding Lowenfeld's effect upon the arts and crafts, McWhinnie states that "Lowenfeld's insistence upon the value of the creative behavior of the child rather than on the aesthetic product may be reflected in the unfortunate gap which now exists between the art educator and the artist . . . Lowenfeld's insistence upon behavior over product, art as a means and not as an end (process over product) has brought about deterioration of the art program in many schools" (58:36).

Victor d'Amico in 1958 wrote that:

For at least the last five years, art education has remained on a plateau where there has been little or no progress but, rather, some signs of decline. We have been over-complacent, living in a creative heaven where everything goes in art, where every kind of standard, or no standard is accepted; we have compromised many of our fundamental values in order to be cooperative. We have tried to be therapists, analysts, collaborators, and integrators. The word "creative" is so broadly and

liberally used that it means everything and nothing (16:6).

D'Amico concurs with McWhinnie in the need to reconsider the importance of the product. He states:

The product is important too. We have, in recent years, tended to devalue the product for reasons that are known to all of us. In devaluating the product, we have gone to the extreme of regarding it as worthless and sometimes this serves as an alibi for poor teaching or no teaching at all (16:7).

Many educators and administrators have become critical of the Lowenfeld child and process-centered art program. Typical of this feeling was the statement made to Victor d'Amico at a New York State Elementary administrator's meeting to the effect that "a good case had to be made for art on the practical basis and not as self-expression if we expected art to hold its place in the curriculum" (16:18).

Long considered one of the most practical aspects of the total art program is the area known as "crafts" (62:preface; 73:21-23). Some educators and writers when commenting specifically on the role of the crafts in education and in our society view the hand crafts as necessary counter-balances to the mechanization and automation existing in business and industry today (63:59-84; 78:11-15). They stress the individual's need for creative effort and society's instinctive search for the objects and articles which display this individuality. Spokesmen for the arts and crafts emphasize, however, that just because some object

is hand-crafted does not necessarily make it worthy. It must also be aesthetically conceived (17:6; 20:2; 72:52).

In an editorial in Creative Crafts Joel E. Edwards writes:

Our magnificent technical advances have robbed us of the inherent charm and individuality of the hand made object. Industry has tried to produce everything to fill our needs in three-dimensional form. We need not lift a finger to have our wants served mechanically if we so outfit ourselves. Why then is the interest and study of the hand crafts gaining importance? It is not solely to fill the empty hours left by these utilitarian conventions. It is the need of the individual to turn from the cold, hard stamp of indifferent duplication to the very humane object produced by the craftsman. It is a growing conviction that the creative arts and the humanities are as much a necessity in our personal and cultural development as is scientific knowledge" (20:2).

Mr. Edwards warns, however, that "thorough foundations in the use of materials and training in the aesthetics of good design must never be compromised for expediency" (20:2).

Victor d'Amico poses the question "Arts and Crafts-- or Arts and Craftsmanship?" with regard to the role of the crafts in education and society. In outlining the background of the question he states that:

Concerted efforts over the past several years to place the crafts on the same footing with painting and sculpture, to give them equal recognition and respect, have achieved minimal results. This is in part to the strong hierarchy of the arts which, when established some time back termed architecture, painting and sculpture as "fine arts," and ceramics, jewelry, metal-work, etc. as "minor arts." Some naive optimists have tried to solve the problem by abandoning the name "crafts" altogether and by adopting the term "arts" to cover every type of creative endeavor, from the fashioning of a teaspoon to the designing of a

skyscraper. This, however, is avoiding reality. Casting a cloak of dignity over the gamut of man's achievements merely obscures the problem--and does nothing to solve it. There is one fundamental basis on which all of the arts can be evaluated and respected. This is aesthetic quality, or craftsmanship (17:6).

Mr. d'Amico uses the word "craftsmanship to mean more than technical execution. He uses it broadly to cover the individual conception of the artist--the aesthetic quality--and the effective choice and use of materials. He feels that the integration of these values distinguishes a creative work. He further states that:

If the crafts are to assume any measure of blame for their subordinate status, it may be due to the over emphasis on technical skill and achievement, at the expense of individual conception The true craftsman places his individuality above all else, and his work bears his identity. The greater his craftsmanship, the more able he becomes in communicating his creative concepts. This is the goal of every artist, whether he be painter, sculptor or ceramist (17:6).

Mr. d'Amico warns that raising the sights of the craftsman and maintaining high standards of performance can solve only half of the problem of equal status with the other arts. The other half has to do with the education of the public. He feels that there are two major factors involved: (1) the quality of the objects shown to the public, and (2) the means by which they are presented. He states: "Too many hobby shows where 'everything goes' (into the show); too much craftwork done for therapeutic reasons; too many do-it-yourself kits have pulled standards down and given crafts a bad name" (17:6).

Edward L. Mattil believes that the crafts in education can play a prominent role in creative growth and in the development of aesthetic understandings. He asserts that:

Today, as in no other time in our history, the importance of creative thinking is uppermost in the minds of leaders in all walks of life. It is important to master skills and to acquire information, but more important is the use of such skills and information for creative living We are able in crafts and art education to teach procedures, and every child can learn procedures. However, it is while the procedures are being carried out that the child engages in constant choices or judgments. This selection or choice in which he constantly engages is aesthetic judgment (55:2).

Mr. Mattil further differentiates between procedures and technique. He states that "procedures are the various activities which can be explained within the general framework of the project which is being introduced" and that technique on the other hand is "the highly individualized use of the materials involved" (55:2). Therefore, he concludes "crafts teaching becomes not only the teaching of procedures but also of creating problems which call for personal solutions" (55:4).

II. THE ADOLESCENT AND ARTS AND CRAFTS EDUCATION

Agreement can be found among most art educators concerning the central importance of the processes of creation and appreciation for the production and enjoyment of art and for personal, mental, and spiritual growth through art (45:3; 47:3; 59:80; 78:11).

Dr. Louis A. Kollmeyer speaking at a meeting of the Washington Association of Secondary School Principals in 1961, stated that:

Certainly, during adolescence the art program provides an opportunity for the release of emotional tension, a chance for self-discovery and for the development of creative abilities through sculpture, painting, and the crafts. We would hope to retain a personal, original quality in an increasingly mature art work in the high school years, to help relate art experiences to everyday living and to provide for developing the full potential of students with varying abilities (45:3).

Professor Daniel Mendelowitz of Stanford University has written that:

The arts can make a unique contribution to this period of transition from childhood to adult status. They can help youth discover the world outside and within themselves, give them self-confidence, and provide avenues through which they can reconcile their desire for independence and uniqueness with their need for conforming and for achieving recognition (59:75).

With regard for the hand-crafted and the machine-produced objects in our society, Professor Mendelowitz feels that:

To build in adolescents a feeling for the honest use of materials, a sense of good design, of propriety, of an imaginative approach to the solution of contemporary living problems to provide them with attitudes that will help them create an environment in which they can live happy lives (59:79).

According to Professor Mendelowitz, the arts have a further role in the adjustment of the adolescent in his transition from childhood to his status as a young adult. This is in the unique contributions of the arts to the adolescent's emotional growth:

The adolescent feels that by achieving distinction in the arts he places himself on an equal footing with adults, professional and amateur, whom he emulates and with whom, at the same time he competes. The arts provide socially acceptable channels through which the adolescent can express his rebellion against his elders and the conventions of their world. The arts are also natural outlets for imaginative play instincts, providing a means for the sublimation of emotional conflicts and sex drives. They also provide a vehicle for crystallizing the adolescent's maturing perceptions about life and society (59:80).

A study was conducted in 1953 at the Pennsylvania State University to determine the relationship between the creative products of adolescents and their adjustment. This study as reported to the National Art Education Association indicates that such a relationship does exist. The creative works of adolescents were evaluated and the results correlated with the scores of a series of standardized measures of adjustment and a standard measure of mental development.

The Pennsylvania State University study showed that the two elements--adjustment and mental ability--are directly related to creative products. It further indicated that the relationship was such that a change in the position of one of them would bring about a change in the position of the others. Associate Professor Edward L. Mattil of the Pennsylvania State University Art Department commenting on this study asserts that "the teacher may be able to improve the creative level of the adolescent by paying greater attention to the creative products of adolescents" and further that "he may raise the level of personal and social adjustment" (54:45).

In recent years art educators have become increasingly aware of the research being conducted in other fields of study. Havinghurst's "Developmental Needs of Youth" (36:78) and research into the many facets of creativity by Torrance, Guilford, Barkhart, Getzels, Jackson and others have provided new insights for art educators.

An extensive analysis in terms of the developmental needs of youth was made by Carolyn S. Howlett of twenty-one art curriculums and courses of study issued by various state departments of education and cities geographically representative of the entire country. She summarized her findings in terms of these ten youth needs:

1. Family life and home-making
2. Healthful living
3. Intellectual skills
4. Vocational preparation
5. Consumer efficiency
6. Civic responsibility
7. Happier human relationships
8. Wholesome leisure
9. Aesthetic appreciation and expression
10. Ethical and spiritual values (41:148).

The study reported by Howlett concluded:

The analysis of goals and objectives reveals that art educators are well aware of the importance of youth needs as the foundation for the art program. Again and again the statements of objectives reiterate that art experiences in a program of general education are important insofar as they contribute to the satisfaction of human needs. Emphasis is on the place of art in the all-around growth and development of the student's personality (41:150).

Although some form of art experience is valuable at

all ages, it is an important need of those experiencing adolescence (45:3; 59:75). During all maturation periods, there is a particular need for those activities and experiences which provide for development of emotional balance, satisfaction of the need for self-expression, and the consequent security which is an outcome of the satisfaction of individual and social needs (54:45; 59:75, 122-126).

III. BREADTH AND DEPTH STRUCTURING OF THE ARTS AND CRAFTS CURRICULUM

Structuring in breadth and in depth are two approaches to the secondary school arts and crafts curriculum. Most of the schools surveyed in this study use combinations of these two approaches.

The breadth approach to arts and crafts implies a rich variety of experiences but which, due to the time element involved in the school term or year, does not permit more than a brief introduction to each experience. This approach has several assets as well as serious defects. Through a breadth approach each student is involved in a wide variety of craft experiences during a school term thereby providing for a wide range of individual differences in likes, aptitudes and backgrounds. A breadth approach offers opportunities for Lowenfeld's visual and haptic students or Burkhart's spontaneous and deliberate students to experience some

media during a term which are more demanding of their individual creative expression (11:159-160).

The problem of discontinuity between media can be a serious drawback to the breadth approach. The breadth program requires adequate planning which takes into consideration the students' needs, individual differences in motivation and abilities, and the physical facilities of the art or crafts room. The breadth approach should also plan for the cumulative learning of concepts, skills and understandings. A sequential order of experiences should provide opportunities for exploration, experimentation and discovery.

In the depth approach to arts and crafts a student may elect to concentrate on one or two media for a semester or a school year. Most commonly in crafts those media for study in depth are ceramics, jewelry, photography and textiles.

In a depth program, the school can plan a program that will enable the students to work through their uncertainties, gaining stability and maturity as they acquire depth of understanding of a limited number of media. Such a crafts program would be considered supplemental to other elective courses in drawing and painting.

The breadth approach is more common than the depth approach. Most of the school courses of study and guides surveyed in this study offered a beginning art which was general or breadth in nature and which included one or two

craft areas. Only the Los Angeles guide offered a general crafts program separate from the art program and which did not have a general art pre-requisite.

Table I on page 29 compares the proposed crafts program for Wenatchee Senior High School with ten arts and crafts guides.

In general, the crafts program in the schools surveyed was included in each school's art guide as a part of the total art program although identified as a craft area. Several schools such as West Seattle High School and the New York City system require one year of basic art before a crafts course can be elected. In those schools the crafts areas become more specialized in this second or third year and offer experiences in depth. The philosophy and the objectives of the crafts programs in those two schools differs markedly from those expressed for the more general crafts programs in the other schools surveyed. These courses were aimed not for the general students of the school system but for the students interested in furthering their pre-professional skills.

An analysis of the subject-matter content in these curriculums points up the problems which initiated this study. Each of the curriculums studied appears to be tailored for a specific locality or specific instructors. There is no truly common ground as to what constitutes

a "craft" and what might be termed "busy-work," nor can a common basis of instruction be identified. One craft guide lists only three media and three art guides list twelve craft media (see Table I, page 29).

The study of design principles and elements as an all-pervading influence upon the craft areas appears in the New York City, West Seattle High School, State of Virginia, Vancouver (Washington) Public Schools and the manuscript for the as yet unpublished State of Washington Secondary School Art guides. Some mention of design in crafts is made in each of the other guides, however, it is not emphasized.

In general, it would appear that the surveyed arts and crafts guides are just that--guides but not rigid specifications for courses. No integration of media or sequences are suggested. The wide variety of experiences offered in the craft programs in the schools surveyed appears to be characteristic of the total secondary school art curriculum. Quite probably art educators would be the first to deplore any move toward standardization or greater uniformity of offerings and stricter conformity to a state or national arts and crafts program.

A comparison of the suggested crafts program for Wenatchee Senior High School and those schools surveyed shows similarities. Some design concepts are mentioned in

TABLE I

ART AND CRAFT GUIDES

	Wash. State Crafts	Fine Art Virginia*	Denver*	Long Beach*	Los Angeles New York City**	Portland Shoreline*	Vancouver*	West Seattle**	Wenatchee	
Ceramics	X	X	X	X	X	X	X	X	X	B****
Plastics				X						X
Three-dimensional Activities										
Mobiles		X	X		X		X	X	X	X
Wood & Plaster		X	X	X	X	X	X	X	X	X
Paper & Other		X		X		X	X	X	X	
Jewelry	X		X	X	X	X	X	X	X	X
Puppetry			X		X					
Photography					X					
Textiles										
Stencil					X	X			X	X
Batik	X				X	X			X	X
Weaving	X	X	X	X	X	X	X	X		
Stitchery	X	X			X					
Leather	X	X	X	X	X		X	X		B
Book Binding	X	X	X		X					
Printmaking										
Stencil			X	X	X				X	
Block Print			X	X	X				X	
Silk Screen			X	X	X	X	X	X		
Paper Mache			X	X	X					
Mosaics	X						X			B
Stage Design							X			
Toy Craft					X					
Model Houses							X			
Basketry		X								
Rug Making		X								
Design	X	X			X		X	X	X	

* In these guides the crafts were included in an "art" guide.

** Crafts courses at these schools require one year of basic art as a prerequisite.

*** The "B" indicates recommended alternate craft media for the Wenatchee Senior High School crafts program.

the guides of five other schools and similar craft experiences are offered at various other schools. Jewelry and three-dimensional activities were covered in eight of the ten guides surveyed. Work in plastics was mentioned briefly only in the Los Angeles craft guide.

One marked difference between the surveyed guides and the suggested Wenatchee Senior High School crafts program is in the suggested sequence of learnings. A close examination of the crafts programs outlined in the available art and crafts guides reveals sequential planning suggestions only in the New York City guide. The various media described in the other guides are discreet and are not related except, perhaps, through parts of the design program mentioned in five other schools. Although, this is not specifically stated. In addition, the suggested Wenatchee Senior High School program includes introductory experiences in each medium to familiarize the student with the medium itself, the tools used and the processes involved in order that each student can draw upon this experience to design further projects in that medium with greater understanding and creative expression.

Table I on page 29 shows the craft areas indicated by the available craft guides and compares them with the suggested crafts program for Wenatchee Senior High School.

IV. CREATIVITY RESEARCH

The creative process is, according to Calvin Taylor, one of the highest, if not the highest, activity to which man can aspire, and is currently a relatively rare phenomenon. He suggests that:

The more creative an idea, the more unintelligible and, therefore, the more unacceptable it will be in terms of current common sense. It is behavior that others do not understand and have not yet experienced. By virtue of the nature of creative work to be a restructuring of our universe of understanding, then consequently, the more creative the contribution, the more it shakes the framework on which current thinking and action is based (77:5).

Throughout history creativity has engaged the interest of thoughtful men, but until very recently it has not been the subject of public attention. Today in newspapers, periodicals, and learned journals one can find opinions voiced as well as scholarly reports on the many facets of creativity.

Creativity research has been hampered by one crucial difficulty: creativity itself is ill-defined and elusive. Perhaps it will never be adequately defined.

Many early studies in art education were derived from allied fields. Psychological studies by such pioneers as Thurstone and several of the Gestalt psychologists influenced early research in art education. Thurstone and his students analyzed intelligence test composites into multiple factors.

The Gestalt psychologists gave to art education such concepts as closure, redefinition and spontaneous flexibility.

Many testing devices have been constructed during the last decade. Most of these have been developed empirically or made to test some specific problem.

Most recently J. P. Guilford and his colleagues at the University of Southern California have been reporting on their research work on creative abilities. Their research led to Guilford's three-dimensional model entitled "The Structure of Intellect." His most directly relevant study for art education was his factor analysis of a number of tests for creativity. In 1962, Guilford listed sixty-one separate intellectual talents discovered to date and provided a definition plus a sample test item, describing the nature of each of these sixty-one talents. His present geometrical model of the total intellect indicates that the potential number of separate intellectual talents may be at least one hundred twenty (33:5).

Brittain and Guilford and his associates attempted, independently but simultaneously, to construct tests of creativity using verbal communication. It is significant that although they used different methods they arrived at similar conclusions. Brittain surveyed the literature on creativity and composed a test of thirty-six sections to cover seventeen qualities such as flexibility and fluency of

ideas. He found that eight of the thirty-six sections clearly picked out a group judged by an art faculty to be more creative from a group judged to be less creative and also from an unselected group (9:39-46).

Regarding some of the causes of creativity, in his survey of the literature on creativity Brittain found numerous theories advanced:

Wish fulfillment, excess sexual energy, the drive for mastery, and the presence of God within us. The environment seems to play a part in selecting the creative person, too; the products of one age might not be acceptable in another, and those who were considered creative a hundred or a thousand years ago might not be looked upon with reverence today. The physical environment might even have a stultifying influence upon us--pushing us into patterns of behavior and nullifying the creative urge (9:40).

In 1960 J. P. Guilford presented to art educators some of his then identified traits associated or characteristic of creative people. Regarding intellectual aptitudes, it was then believed that the creative person is capable of unusual abilities to think fluently; he is able to call forth from his memory storage items of information for use in some indirect or unusual ways. He is also a flexible thinker in that he is relatively free from rigidity in thinking; he is pliable, changeable, and not habit-bound. He can elaborate in great detail upon what is given or what he knows, embellishing it with numerous additions, one thing readily suggesting another (32:2; 34:5-6). Dr. Guilford identified these characteristics as being tested by primarily verbal material.

Two years later Dr. Guilford reported that:

The important question that faces us is whether the creative-thinking abilities for dealing with verbal communication also apply to the visual artist whose communication is non-verbal.

All fluency, flexibility, and elaboration abilities, verbal or non-verbal belong logically to a general category called "divergent production." In divergent production of ideas, verbal or non-verbal, from a given item (or from given items) of information we generate other appropriate ideas. In divergent production, the answers produced are varied and they are likely to be numerous. There is a parallel general category of convergent production, in which the given information determines only one right answer, as in logical deduction. In divergent production we have the kinds of freedom that is needed in creative thinking (32:2-3).

Dr. Guilford emphasised that in the use of verbal tests, three different fluency abilities were found, depending upon what kind of mental product is produced; also two kinds of flexibility abilities and one kind of elaboration. In this latest report only on creativity in the visual arts, Guilford is concerned with the description of the six figural divergent-production abilities and how they correspond with the six verbal abilities.

A. Fluency

1. Ideational fluency--how many figural ideas can a person come up with in a given time that fulfill the specifications such as "objects that are white, soft, and float in water."
2. Fluency in analogy; abilities in seeing relationships or opposites, etc.
3. Expressional fluency is tested by means of items that call for the rapid organization of phrases or sentences. In art this would mean tests such

as: given three capital letters, in how many ways can the examinee arrange them in monograms in limited time?

B. Flexibility

4. Spontaneous flexibility--tests such as "brick uses." How many uses can the examinee think of in limited time. The total list is a test of ideational fluency, but the number of times the examinee shifts category of use gives a score for spontaneous flexibility.
5. Adaptive flexibility--this involves revisions of meaning in order to achieve some varied answers. The examinee is asked to solve a problem in as many ways as he can. He has to be sufficiently flexible to desert one solution and find another.

C. Elaboration

6. In the context of verbal information--this test is called planning elaboration.

In tests for figural elaboration--this test is called decorations: an outline of a piece of furniture, such as a floor lamp, a chest or an over-stuffed chair is given, the examinee is told to add lines to show how he would decorate the object. He is not to repeat the same decorative idea in other objects or in the same object when it appears a second time. Thus he is compelled to indulge in divergent production; the divergent production of figural implications (32:4-5).

Another research study done in the field of art by Lowenfeld and Beittel, administered a battery of thirty-six tests of mental ability and personality traits to a group of students. The subjects had been previously rated as highly creative or non-creative on the basis of their performance in the arts. An analysis of the results revealed eight distinct attributes that significantly differentiated the creative individuals from those who were less creative. The

creative individuals were found to excel in: (1) sensitivity, (2) fluency, (3) flexibility, (4) skill at redefinition, (5) ability to abstract, (6) ability to synthesize, (7) consistency of organization, and (8) originality (48:35-44).

Further examination of this study by Lowenfeld and Beittel revealed that six of these attributes were identical, and one similar to those found by Dr. Guilford in his studies of creativity (32:4-5).

Until recently, there had been a strong tendency to equate creativity with academic ability as measurable by intelligence tests. Several recent research studies into the human personality, intelligence and creative ability have challenged that former assumption.

Calvin Taylor points out that some confusions exist in the minds of many educators about the problem of intellectual talents. He points out that the word intelligence is being used to mean two widely different things. First, there is verbal intelligence which means that small set of things measured by traditional intelligence tests. The second is spatial intelligence which deals with the capacity to perceive and to deal with spatial arrangements and which is not measured by the standard intelligence tests. There are, of course, many other elements of intelligence in addition to these two. Taylor recommends the discontinuance of the term intelligence in connection with all intellectual activity.

Instead, he recommends the use of the term "giftedness" or the alternative term "total intellect" (77:5).

In emphasizing the relationship of creativity to intelligence Calvin Taylor asserts:

Other types of giftedness can be illustrated by the creative type. Traditional intelligence tests do not require one to create new ideas or to think of ideas on one's own. If an intelligence test is used as the basis for selecting top level talent, about 67% of the persons with the highest scores on a "creativity" battery would be missed. If the intelligence and creativity were completely unrelated 80% would be missed but due to a slight relationship, only 67% of the top-scoring "creative" people are missed (77:7).

With regard to the implications of creativity research to education, perhaps the most significant recent studies have been reported by Getzels and Jackson of the University of Chicago, Burkhart of Pennsylvania State University and Torrance of the University of Minnesota.

Drs. J. W. Getzel and P. W. Jackson used a series of tests to measure a child's ability to come up with creative solutions to questions. They administered these tests together with standard I.Q. tests to two groups of secondary school students. The High Creative Group was composed of the top 20% on the creativity measures but below the top 20% on I.Q. The High Intelligence Group was composed of the top 20% on the intelligence measures. The data "indicated that the highly creative were equally superior to the school population in school achievement along with the high I.Q. group, this result despite the fact that the I.Q. of this

group was lower than the population average" (28:21).

When the teachers were tested on their attitudes toward these two groups, their ratings indicated that they most enjoyed having the high I.Q. students in their classes rather than the high creative group (28:21).

As part of this same study, Getzels and Jackson asked the two groups to identify the traits which they believed led to adult success, the qualities they believed that teachers favor and what traits they desired for themselves. On the first two traits, the two groups were in substantial agreement but on the third there was a marked difference in their respective lists. The high creative students indicated almost opposite traits from those that they had listed as the qualities leading to adult success. In questions regarding occupations, the high creative students preferred unconventional occupations (28:21-22).

The study conducted by Paul E. Torrance and his associates at the University of Minnesota investigated the development of creativity in people from the kindergarten through the university graduate school. This study was important because it included elementary and college age individuals while the Getzels and Jackson study dealt with high school students only.

The Torrance study included eight different measuring devices which included a modification of Guilford's test

batteries. From this research developed a series of creativity curves which plot creative ability through the various age levels. These curves show steady growth from the first through third grade, a sharp decline between the third and fourth grade followed by a steady growth to adulthood (79:22).

The Torrance study corroborated the findings of Getzel and Jackson regarding the high achievement by the highly creative and the attitudes of the teachers toward this group. The report states:

In general, the high I.Q., lower creativity pupils tend to be preferred by teachers to those high in both I.Q. and creativity. Those high on both were judged by teachers as more unruly, more dominant, more ambitious, more independent, more friendly and more studious and hardworking than either of the other two groups (79:22).

These studies and others indicate that intelligence alone does not guarantee creativity. On a difficult, high level test of the more general aspects of intelligence, creative persons score well above average, but their individual scores range widely, and in several of the creative groups the correlation of intelligence as measured by this test and creativity as rated by experts is essentially zero (28:21; 79:22; 10:83).

It cannot be inferred from these tests, however, that over the whole range of creative endeavor there is no relation between general intelligence and creativity. No feeble-minded persons appeared in any of the creative

groups. "Clearly a certain degree of intelligence, and in general a rather high degree, is required for creativity, but above that point the degree of intelligence does not seem to determine the level of one's creativeness" (49:16).

One of the most significant art research studies in recent years was that conducted by Robert C. Burkhardt at Pennsylvania State University on the identification of creative and non-creative behavior and conditions which may facilitate creative learnings in the visual arts. This study has particular relevance for the arts and crafts teacher in the secondary schools who is confronted by students of varying aptitudes, developmental stages and attitudes in each daily class.

The terms "spontaneous" and "deliberate" are employed by Burkhardt as substitute terms for creative and non-creative behavior, respectively. Such behaviors are examined in this study as they are reflected in the art products and appreciations of adults and adolescents. Consequently, spontaneous and deliberate have been used as terms which symbolize characteristic modes of defining form and of reaction to stimuli. Dr. Burkhardt visualizes these modes of expression and response as existing at either end of a line with tendencies toward deliberateness or spontaneity fluctuating along this line--his "spontaneous-deliberate continuum" (11:9-13).

In summarizing the opinions and findings of writers in

the field, W. Lambert Brittain concludes regarding creative persons:

He would have rich experiences; that is, he would interact freely with his environment though his life on the surface may appear no more "romantic" than any other. He can use his experiences in new situations, is quick to see relationships, and assemble many pertinent ideas to focus upon a problem. He is flexible in his approach to new ideas, and can easily handle numerous thoughts at once. He has an abundance of energy which he voluntarily uses to alter displeasing situations and to invent, write, paint, or otherwise produce. He has a certain sensitivity to his environment, seeing differences and similarities where others miss them. He can think abstractly and his thoughts are often unusual or novel; sometimes he seems intuitive and has insight into problems or situations. He is usually a well-adjusted and happy person (9:45-46).

V. MOTIVATION AND TEACHING PROCEDURES FOR DEVELOPING CREATIVENESS IN ARTS AND CRAFTS

Motivation is an integral component of learning and a critical problem in educational settings (38:896; 52:888-898). Educational psychologists and educators use such terms as needs, interests, drives and goals in treating the motivational aspects of the teaching-learning process; in other fields of psychological research such terms as primary drives, secondary drives and incentives appear (43:348; 52:894). The general area of the relationship of drive to learning and performance has easily been the most active one involving motivational variables in experimental psychology in the past twenty years (52:888-894).

The drive-reduction theory of reinforcement has been

perhaps the most controversial single principle in recent years of research on motivation. Originally stated as the "Law of Effect" by Thorndike, the general principle maintains that responses that are followed closely by satisfying or rewarding consequences will be strengthened (80:892).

B. F. Skinner's reinforcement theories as applied to education are generally accepted as the basis for the current interest in teaching machines. Like Thorndyke before him, Skinner accepts the idea that "a satisfying consequence or reinforcement immediately following a response facilitates permanent acquisition of the response" (76:428).

Skinner's most serious criticism of current classroom learning is that the correct responses are too infrequently reinforced. He further believes that a large portion of classroom material is factual. Therefore, he feels that well-designed and programmed machines can be used to facilitate the acquisition of factual material and overcome the ineffective reinforcement procedures of the usual classroom (76:428-429).

Skinner's convincing ideas have led to high interest in teaching machines and to some controlled experimentation in school settings (76:429).

Klausmeier cautions, however, regarding the use of teaching machines:

At present, however, we cannot reliably estimate the extent to which learners, trained with machines that determine both what is to be learned and how often the correct responses are to be reinforced or rewarded, can become creative individuals who decide for themselves what to learn, how to learn it most efficiently, and how to produce their own ideas and inventions (43:178).

Melvin H. Marx in reporting on the research relating to the activation of drives and motives, states that "there are three important ways in which drives are activated: deprivation, external stimulation and symbolic stimulation" (52:894). He also finds that interrelations among drives and motives make up an important research area with implications for personality theory and with application to the theoretical and practical problems of training and education (52:895).

Many facets of the relationship between motivation and learning are immediately relevant to sound educational practice.

Klausmeier enumerates eight principles of learning that he states are closely related to teaching practice:

1. Purposeful learning follows a developmental sequence.
2. Motivation is essential to purposeful learning.
3. Direct experience is needed to acquire concepts.
4. Practice is necessary in acquiring skills.
5. Insight facilitates efficient problem solving.
6. Identifying figures enhance the development of attitudes and values.

7. Meaningful learning is retained, and it transfers.
8. Differences affect learning outcomes (44:66).

According to Klausmeier, a definite sequence is apparent in purposeful learning. Unsatisfied needs arouse and direct activity toward goals which the individual perceives as satisfying those needs. He classifies these needs as:

"Physiological needs, safety needs, love and belonging needs, esteem needs, self-actualization needs, the need to explore and the need to achieve" (43:348). These goals may be remote, intermediate, or immediate. A variety of factors affect goal-setting and goal attainment in learning situations.

"Experiencing success currently and anticipating further success in attaining goals result in higher achievements and better personality integration than do experiencing current failure and anticipating further failure" (43:348).

Klausmeier finds five essential features in the developmental sequence which precede purposeful learning:

1. The individual is motivated; and the goal, which constitutes an incentive to action in a given direction, becomes associated with the motives.
2. He consciously directs his attention toward the goal and expends energy in efforts to achieve it.
3. He engages in intelligent trial-and-error activities to find a new method of reaching the goal or to improve existing methods.
4. He applies previous experiences, differentiating various elements of the present situation in order to perceive an appropriate method more clearly and integrating responses into a new or higher-level response.

5. In this process of differentiation and integration, he discards inappropriate methods, confirms the correct one, and incorporates it into a learned behavior pattern which is available for use in other situations (44:67).

If all students came to school and wanted to learn everything the school and teacher desired, the only problem of motivation would be to find sufficient and appropriate learning activities for them. However, many students do not respond favorably to what the school and teacher offers them nor do they want to learn it in the particular manner presented. No hard-and-fast rules of motivational procedure are possible for all of the kinds of situations and problems that are found in training and education. Just as students differ markedly in emotional maturity and intellectual capabilities, so also do they differ in their responsiveness to several types of motivational techniques and processes.

Particularly in situations where students are to acquire learnings for which they perceive little or low need gratification and in which they have little or no interest, Klausmeier states that a teacher "reasonably relies on a variety of motivational procedures. High motivation can be attained in group situations by:

1. Focusing pupil attention toward desired learning outcomes.
2. Utilizing curiosity and encouraging its development.
3. Using existing interests and developing others.

4. Providing concrete and symbolic incentives if necessary.
5. Arranging learning tasks appropriate to the abilities of the learner.
6. Providing for realistic goal-setting.
7. Aiding the learners in making and evaluating progress toward goals.
8. Recognizing that too high tension produces disorganization and inefficiency (43:348-349).

Marx and others concur with Klausmeier's eighth point cited above that too much motivation can have unfortunate consequences including inefficiency, errors in judgment, anxiety and the formation of undesirable habits such as cheating (52:896).

The necessity of adequate rewarding is recognized by almost all authorities, independently of their theoretical interpretation of the function of reward in reinforcement. Although praise is commonly regarded as superior to reproof as an educational device, psychologists and educators urge caution in the application of other generalized principles. They point out that the same rewards affect individual students differently (52:896; 57:74-82).

In summarizing research on the use of reward in training situations Marx states that the most important principle is the "desirability of insuring frequent and regular experiences of success--or reinforcement--throughout all phases of learning, but particularly in the earlier, and

generally more difficult, phases." He continues: "An implication of this principle is that the teacher needs to insure that the learner is not given tasks where he is expected to perform beyond his present capabilities and that he is not led to make unreasonable demands on himself" (52:896).

With regard to the statement by Marx cited above, Boyd R. McCandless calls this the "level of aspiration" in performance. He states that this term ordinarily has a personal frame of reference. An individual has a positive level of aspiration if he predicts that he will do better on a task than he did the last time he tried it. In his studies, McCandless finds that most children and adults believe and hope that their future achievement will be superior to their past performance. He states that the implications of this finding for education are that:

Children should be kept reaching, but that their reaching should be so structured as to afford reasonable hope for a successful outcome. The level of aspiration is usually raised after success and lowered after experiences of failure. Maladjusted groups of children and adults are more variable in their predictions about performance, following both success and failure, than are normal groups.

Suggestive evidence exists that persistent success or failure may have long-lasting effects on an individual's level of aspiration Success will buoy him up; failure will depress him. In the academic sphere, middle-class children seem to possess more positive levels of aspiration and stronger achievement motives than lower-class children (56:410-414, 446).

Hilgard and Russell report from their findings an implication related to level of aspiration. This states that "as far as possible, students should be offered reasonable subgoals, with an appropriate emphasis on their attainment, especially where relatively long and difficult periods of work are required" (38:896).

A second major principle summarized from many studies by Marx is the desirability of continuous use of knowledge of results. This knowledge has two important functions beyond its obvious direct reinforcing role: "First, it provides information that is often necessary to gauge and adjust performance; this is most apparent in regard to the improvement of motor skills. Second, it is a very important motivator in its own right" (52:896).

"One of the problems involved in initiation of performance is that of overcoming inertia" states Marx. In his judgment "it is a difficult enough task in its own right, but it is enormously and unnecessarily worsened if the student is permitted to be overwhelmed by exposure, without modifying precautions, to the full scope of the task expected of him" (52:896). Of particular pertinence to art education is Marx' suggestion that a student can more often be stimulated to work by a reasonable partial assignment than by assignment of the whole task all at once.

Research in motivation and educational procedures in

arts and crafts has not been as precise nor as laboratory-experiment oriented as that in some other fields. However, the research which has been reported in art education journals and books indicates that wide ranges of individual differences need to be considered in motivating students in art, in evaluating their readiness for specific types of art tasks, in teaching craft skills and techniques, in evaluating their progress, and in the overall curriculum planning of art activities.

Viktor Lowenfeld stresses that there is no single approach to "freeing children or adults in their creative potentialities, or to making them more sensitive toward themselves and their environment" (47:3).

Lowenfeld enumerates three factors upon which depend the effectiveness of any teacher's efforts to promote creativity:

1. His own personality, of which his own creativeness, his degree of sensitivity, and flexible relationships to environment are an important part.
2. His ability to put himself into the place of others.
3. His understanding and knowledge of the needs of those whom he is teaching (47:3).

McVitty conducted an experimental study which indicated that the same motivations may have different effects under different circumstances and treatment. He studied the effect of various methods of motivation upon the art work of fifth-graders. He used five basic motivations, each of which had

what he called a strong and weak version, plus a spontaneous motivation to be included when environmental cues suggested it. McVitty found that motivations involving the "personal factor" involving a strong interaction and participation between teacher and student were particularly effective, whereas other motivations such as the designed opportunities for spontaneous drawings were not (57:74-82).

In a doctoral study reported by Marilyn J. Horn, she found that "knowledge and understanding of art principles in the abstract were not significantly related to the application of the same principles in the various areas of design." She further reported very limited transfer from abstract to concrete forms (40:82).

In experiments conducted first by Maslow and Mintz and later by Mintz, it was demonstrated that varying visual and aesthetic conditions of rooms significantly affected judgments made by subjects in them (53:82). These studies are important in their application to the planning of the art room environment for creative experience.

Guilford and Burkhart suggest the use of divergent thought production for creative expression (32:3; 11:3, 208-211; 43:195). In divergent production of ideas, verbal or visual, from a given item of information other appropriate ideas are generated.

Burkhart suggests in his concept of a "Spontaneous-Deliberate Continuum" that the "Deliberate High" or non-creative students should through use of divergent thinking be directed toward a more creative behavior in the arts. He identifies in precise terminology and cites examples to illustrate each of his classifications along this continuum. These concepts, illustrations and suggestions offer genuine insights for the art educator (11:9-63). Of particular importance to the arts and crafts teacher are his descriptions, examples and analysis of the "Spontaneous-Low" and "Deliberate-Low" students. There appears to be a considerable number of these students in arts and crafts for reasons to be noted in Chapter Four.

Some of the research being conducted in Special Education and in the education of the mentally retarded children on the learning process is relevant to art education because some under-achievers, slow learners and students with low self-motivation are in arts and crafts classes in addition to the average and superior students.

Studies conducted by Heber and by Gardner using mentally retarded and normal boys obtained results suggesting that the retarded enter a new situation with a generalized expectancy for failure. With success experiences on the specific task, their performance on that task improved as the expectancy for failure dissipated. Normal subjects were

more prone to show increased striving with mild failure experiences whereas the retarded with the same conditions tended to avoid, withdraw, and show decreasing striving to perform (37:840). This finding is similar to McCandless' "level of aspiration" findings.

The Course of Study in Major Art for the New York City Schools includes a course entitled "Creative Crafts." This course has as its major premise that "everyone is essentially creative." It is on this premise that the course provides "a variety of crafts areas which will prove interesting, challenging, and stimulating" (50:223). The principle motivational method in this guide are the materials themselves, discussion, demonstration and examples of modern and traditional objects formed in the materials to be used in class. The experimental approach to each material is emphasized rather than the "correct" process or technique. However, it must be noted that these students are not the average heterogeneous group found in the usual secondary school. These students must have completed one year of basic art before they can elect a course in crafts. It could be inferred, therefore, that the problems in motivation and widely differing student backgrounds are not as acute in these classes.

Leon L. Winslow believes that the art activities in the high school should be derived from the everyday needs

and experiences of the students. In that way the students will be motivated from a thorough acquaintance with the subject matter. Regarding the organization of instruction he states that:

A balanced unit of teaching in art is normally made up of a number of clearly conceived parts. The unit should embrace information as well as activity, the information included being both general and technical, in order to assure a broad cultural background. The activity growing out of a unit should be both directed and creative, in order to assure consistent pupil growth in the manipulative phases of the subject.

Although general information is of necessity non-technical, the general information to be provided in any art teaching unit should be as closely related as possible to the art interests around which the unit is organized. The technical information should have to do with technique and with aesthetic considerations. Directed activity implies activity which is not creative, its purpose being nevertheless to develop those particular skills which will find fruition in creative expression. Creative activity is activity which is not direct; it is the expression (82:36-38).

Winslow identifies four sequential steps in most units of work in art as: (1) orientation, (2) design, (3) forming products, and (4) appreciation (82:42). Motivating students toward the creation of an art product falls within the scope of the first step.

Victor d'Amico points out that one of the necessary elements in creative teaching in the crafts is the teaching of design principles. To neglect the teaching of design in crafts is to reduce the crafts to mere copywork or non-creative busywork. Through the knowledge of design principles the student can be motivated to apply this knowledge to materials (18:213).

Moseley, Johnson and Koenig in their excellent guide Crafts Design emphasize that the crafts are based upon design with materials. They assert that "it is essential at first to become acquainted with the material as it is used and to discover its possibilities. Students should be encouraged to do a great deal of experimenting and to try out various ideas, because experimentation is essential to any creative work (62:430). These experiences directly with the materials together with a knowledge of the elements and principles of design are the principal motivational methods suggested by these authors.

Eight steps in working with a craft are outlined by Moseley, Johnson and Koenig:

1. Introduction to the materials used in the craft.
2. Introduction to the tools and the purposes for which they are used.
3. Demonstration of the processes involved in working with the materials and tools.
4. Experimentation with materials and tools to become acquainted with their qualities and the possibilities of their use in design.
5. Evaluation of the discoveries and their utilization where possible in the construction of objects for a particular purpose.
6. Application of methods of preplanning in which the elements and principles of art are used.
7. Starting with simple designs first, then later working toward more complex ones.
8. Consideration of whether designs should be abstract in character or whether pictorial units could be used (62:430).

C. D. Gaitskell joins Lowenfeld, Mendelowitz and Winslow in asserting that the majority of experiences from the student's everyday life are suitable for artistic expression. The student's existing interests are used by the teacher for artistic motivation. With immature students, the teacher may rely entirely upon materials themselves as motivating forces for creative activity. However, with adolescence comes the drive for adult standards of perfection and critical awareness of technical shortcomings. At this stage, the teacher has the task of helping to set realistic goals, to assist in resolving difficulties, and to provide opportunities for adequate exploration of materials, use of tools, and application of individual expression (26:36-48).

In discussing the meaning of skills and techniques in the secondary school, Viktor Lowenfeld states that the crafts can play a vital role in promoting freedom of expression during the adolescent period of acute self-criticism. It is his finding that "adolescents are afraid to use any method which directly projects their imagery." Further, he asserts that he has seen "adolescent youngsters discouraged by the 'primitivity' of their pencil drawings but if the identical drawings were used for etching or embossing, they were well satisfied. The direct form of expression apparently was emotionally too close to them and their self-critical attitude could not bear the 'naivete' which was in contradiction to their grown-up feelings" (47:338). Thereby, an expression

thought unsuitable by the adolescent for direct use in one material can be the motivation indirectly for creative use in another media.

In comparing good and poor methods in the teaching of art, Lowenfeld indicates that:

Methods that restrict the individual instead of making him free are poor. Methods having no relation to the individual needs of the student are rigid, and as such do not lead to the establishment of freedom. At the other extreme is the trend in progressive art education to throw overboard all teaching methods and to regard the unhampered creation by the individual as the only possible creative outcome of good education. Although such an approach may be applicable to some, it cannot become a basis for art education, especially during such a difficult period as the crisis of adolescence (47:282-283).

Professor Edward L. Mattil in writing specifically regarding methodology in the teaching of arts and crafts states:

It is important to develop a climate or classroom situation which permits enough freedom to encourage creative work and creative thinking. On the other hand, the teacher must exert sufficient control and provide enough direction and motivation to teach good order and good work habits. Craft work must be creative, calling upon the child to use his initiative, resourcefulness, and imagination in solving the problems presented. Each craft should help the aesthetic growth of the child and bring about a greater awareness of the art and beauty of the world about him. Crafts should permit the child to learn about the materials, to gain respect for their limitations and yet explore fully the possibilities of them (55:133).

In summary, regarding the motivation of students toward creative expression in the arts and crafts, many factors must be considered by the instructor. Secondary school students differ in their developmental stages, intellectual

growth curve, orientation to space, ability to visualize design, ability to organize detail and three-dimensional material, perceptual rigidity-flexibility patterns, time needed to shift from one type task to another and ability to transfer learnings from one task to another. Each of these factors needs to be considered in planning the experiences for a given class, or sequences of classes, in a school system. The research material suggests that variations in motivation and some freedom of choice in the use of tools and materials are necessary for the development of individual creative expression.

CHAPTER III

EXPERIENCES AND PROCEDURES

Because this craft course falls within the scope of art education rather than industrial education, primary emphasis has been placed on plastic expression of aesthetic ideas rather than on processes and techniques although these learnings are basic to any craft course. Various approaches to solutions of problems were presented to provide students with those basic art learnings and simple craft skills necessary to translate creative ideas into visible products.

Four craft experiences were chosen for inclusion in this study. Each medium was conceived in terms of its design potential and was introduced by a sequence of exploratory projects. In addition, the sequence was planned to enable the students to draw upon previous design and handicraft skills in each new medium as well as providing a variation between two and three-dimensional experiences.

The four craft experiences included in this study are:

1. Three-dimensional activities
 - a) Mobiles
 - b) Aggregate sculpture
2. Plastics
 - a) Cast plastics
 - b) Sheet plastics

3. Jewelry

- a) Enameling on copper
- b) Metal applique
- c) Setting of "tumbled" stones

4. Textile printing

- a) Stencil printing
- b) Batik

Evaluation of each craft process and product was made on the basis of the following criteria set up by the researcher and the consultant: (1) skill in the use of tools, equipment, and materials; (2) originality and imagination in the design--willingness to experiment; (3) demonstration of understanding of the project assigned shown by the fulfilling of the requirements of the assignment; (4) ability to plan and to execute own ideas; (5) ability to transfer learning from one project to the next; and (6) the quality of the finished product.

I. DIAGNOSTIC ART PROBLEMS

Diagnostic art problems similar in many respects to Guilford's visual creativity tests described in Chapter II were given at the beginning of the semester to establish a basis for later evaluation of progress. In addition, a questionnaire was completed by the students giving information on previous art and/or crafts experience in junior and senior high school, extent of outside school participation

in arts and crafts activities and reasons for taking crafts (See Table II, page 109).

The diagnostic art problems referred to above were three teacher-made tests for innate design sensitivity and creativity, ability to organize and execute a design as well as originality and imagination. The limitations of the use of these tests were stated in Chapter I.

The first test was "variations on a theme" in which each student chose one basic geometric or abstract shape and investigated how many ways in which he could create varied designs within that shape. This test was similar in many respects to Guilford's test for figural elaboration cited in Chapter II. This assignment also tested the students' divergent/convergent production of ideas.

Instructions were given that there should be at least ten variations, that the project was to be the student's own ideas and that the teacher would not advise nor give specific suggestions for variations. Ten variations were specified as a minimum because it was found empirically that at least the first four to six variations were usually the cliché variety of rigid geometric designs of the space. Variations beyond that number were needed to produce creative solutions to the problem.

The materials available were 3" x 5" white cards,

construction paper in all colors and sizes, pens, ink, colored pencils, cellophane tape and white glue. Students were encouraged to experiment with mixed media and to use textures, papers or textiles obtained outside the classroom. The finished designs were to be mounted on either the 3" x 5" cards and hinged together with cellophane tape or on 12" x 18" construction paper. This was a four-day assignment.

Figures 1 and 2 show examples of this assignment as well as some examples of the following assignments.

In Figure 1, design project No. 3 was particularly interesting. The shape chosen was a box-like house with a gabled roof. This student introduced several textures in colored inks and varied the interior shapes considerably. Although this girl hadn't been in a crafts class before, she was enrolled in advanced art at this same time and worked quite independently at home on projects of her own devising. This art background was reflected in the above average quality of her work in crafts. The same girl also made design No. 8 to be discussed later.

Also in Figure 1, designs Nos. 1 and 2 were judged to be typical of the treatment of geometric shapes by the average student. In Figure 2, design No. 1 shows the typical handling of the assignment through the use of colored paper.

This particular assignment was accepted as a challenge

and was enjoyed by the students. At this point it is important to note that enjoyment of an assignment was not directly related to aesthetic success.

The second test had two design assignments. These assignments followed a discussion and demonstration of the principles of balance in design. The three types of balance discussed and demonstrated were formal, informal and radial. Examples of types of balance found in nature and in man-made objects were shown to the students as well as many examples of geometric and curvilinear designs. Repetition and progression of shape, size and color were pointed out as elements which add interest and emphasis to a design.

This second assignment tested the students' ability to organize elements and to recognize visual organization.

The two design test assignments were to be examples of informal balance. Instructions were given that one was to be a geometric design with all right angles and the other was to be a curvilinear design without right angles.

The materials for the two designs were 9" x 12" white or black construction paper for the background, a large selection of colored paper to be cut into shapes and white glue for the mounting of the cut shapes.

In Figures 1 and 2 are several examples of this assignment. Reference will be made to certain of these examples in some of the case studies in Chapter IV.

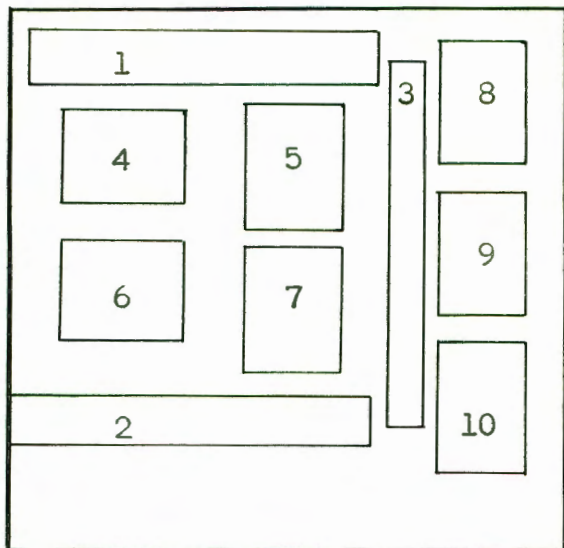


Figure 1. Examples of diagnostic art problems

Key to Figure 1.

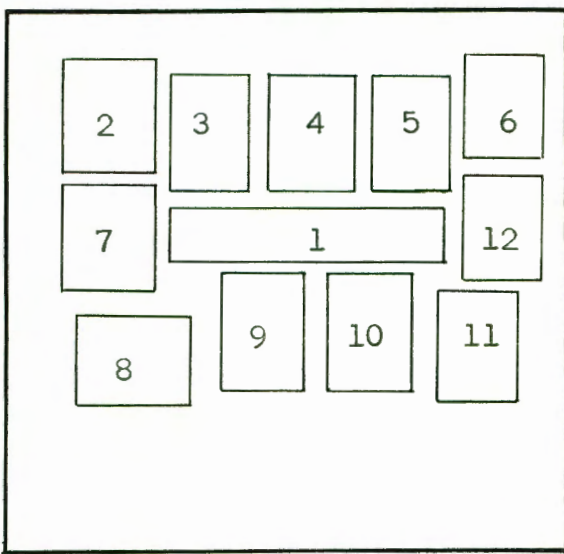


Figure 2. Examples of diagnostic art problems

Key to Figure 2.

The examples of this assignment shown in Figures 1 and 2 were judged to be average or better responses to this assignment. As mentioned above, in Figure 1, design No. 8 was made by the same girl who made design No. 3. This curvilinear design in red-orange and browns was chosen by the author and the consultant as a better than average example of informal balance. She varied her shapes considerably, however, repetition and progression of shape is evident.

Also in Figure 1, designs Nos. 1 and 4 were made by one senior boy and designs Nos. 5 and 7 by another senior boy. Although design No. 1 was judged average due to the lack of consideration of the total shape in the planning of the interior designs, design No. 4 indicates some sensitivity to negative and positive spaces and a feeling for balance of the total design. Designs Nos. 5 and 7 indicate a feeling for simplicity and restraint both in numbers of shapes and in the range of colors used. The rhythm of the shapes in design No. 7 was the most pronounced in all of the students' work.

Design No. 2 in Figure 2 was done by a senior boy without previous art or craft background. This design appeared to be one of the most original or spontaneous in the three classes. This boy had caused trouble in other classes but proved to be a good worker in crafts when he was interested

in the project underway.

Design No. 4 in Figure 2 was done by another senior boy with a reputation for being a trouble-maker. A friend in the class of the boy above, he too was without an arts and crafts background. An individual case study of this student is in Chapter IV.

Also in Figure 2, Designs Nos. 9 and 10 were done by one sophomore girl. This girl had nearly the lowest I.Q. in the three classes. A case study of her appears in Chapter IV. It is important to note here how interesting and original the color and shape groupings are in her designs.

In Figure 2, design No. 12 was one of the superior curvilinear designs. This was made by a sophomore boy with a low I.Q. who, during the school term, was unable to bring to a finish most of his projects. His classwork suffered from frequent absences due to health. The promise of creative work in crafts design indicated by this assignment did not materialize.

The design assignments were returned to the students for examination and discussion before being retained by the teacher until the end of the term.

II. THREE-DIMENSIONAL ACTIVITIES

One of the basic needs of adolescents is that of "realizing the fulfillment of his idea in the satisfaction

of activity or in the production of a work of art" states Victor d'Amico. In addition "enlargement or building upon previous activity can provide stimulation" (18:214).

Therefore, to meet these adolescent needs, immediately after the two-dimensional design experiences mentioned above, a three-dimensional experience was presented. This was the making of mobiles and stables.

The assignment involving mobiles and stables stressed the non-objective design possibilities, informal balance and the incorporation of rhythm and movement into the design. The previous learnings regarding balance, repetition and progression of size of color and shape were discussed with the students as these elements related to this assignment. In this way the two-dimensional design assignments became the introductory experiences for this three-dimensional project.

The film "Make a Mobile" was shown to the students. The showing of the film had to be repeated for each class because there was immediate interest but few of the students had seen a mobile before. A discussion followed the showing of the film in which the forms and characteristics of mobiles and stables were discussed, students suggested a wide variety of materials which could be used in mobiles and techniques of construction were presented.

As in the film, idea sketching preceded actual construction, although it was pointed out to the students that their projects in the final state might vary considerably from their original conception. Experimentation with and stimulation by the materials was encouraged.

Materials available were wire in many different weights, black and white string, thread, aluminum and copper tooling foils, scrap pieces of thin copper and aluminum sheet metal, pieces of stained glass, colored cardboards and assorted "found" objects.

Mobiles and stabiles as forms of expression were new to the students. This was both an advantage and a disadvantage. The newness reduced the cliches which come from association with stereotypes but also brought problems of aesthetics since some mobiles can become "floating junk yards" if design principles are not carefully considered (55:126). Selectivity and sensitivity are needed to create an aesthetically satisfying product from such varied materials.

The students reacted with general enthusiasm to this assignment. Some students worked rapidly and others quite slowly because they were unfamiliar at this point in the terms with such tools as tin snips and pliers. Figures 3, 4, 5, and 6 are examples of some of the more successful mobiles.

The mobile shown in Figure 3 was made by the same

senior boy who made designs 5 and 7 in Figure 1. His design No. 7 and this mobile were strikingly alike in their characteristics of rhythm and movement. This boy was also enrolled in beginning art during this term.

Figure 4 by a senior boy was judged to be the most successful representational mobile in the three crafts classes. The whale's tapered ribs are heavy aluminum foil which had red paint on one side. This boy's only previous art experience had been one semester of art in junior high school.

Figure 5 was made by a junior boy. This mobile combined wire, string, copper and aluminum foils and a broken piece of stained glass. It was judged to be one of the clearest examples of informal balance in the three classes.

The mobile in Figure 6 was the largest created in the three classes. It was at least three feet across. This boy was also taking beginning art. He combined colored cardboard, string and color-coated wire in his mobile.

This project was generally enjoyed by the students although some did not grasp the fundamental characteristics of motion in their mobiles or stabiles. Other students developed ingenious and inventive solutions to this problem in informal balance and motion.

Figure 7 compares the mobiles in Figures 3, 4, 5, and 6 with the design problems executed by these same students.

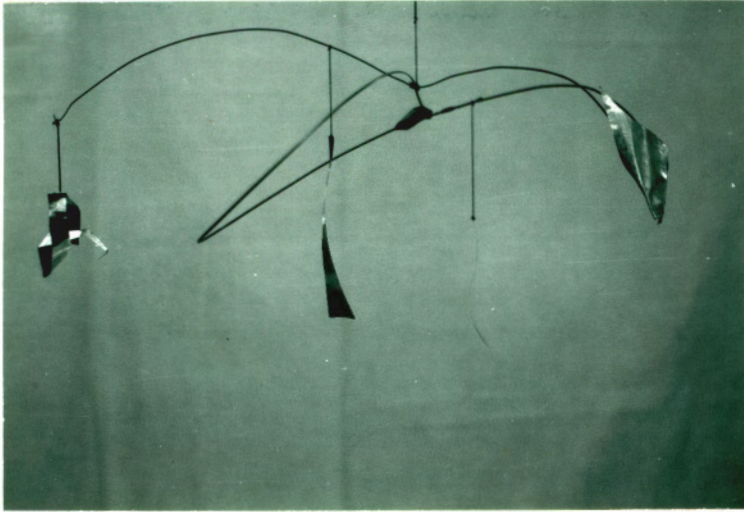


Figure 3. Three-dimensional activities:
Mobile

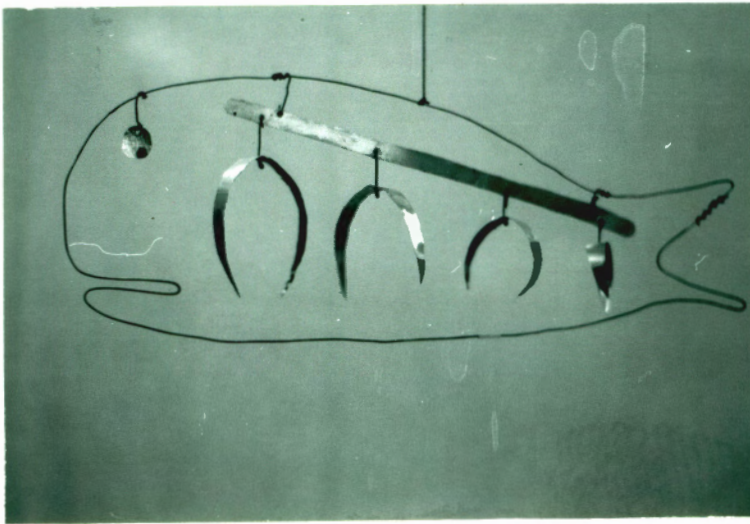


Figure 4. Three-dimensional activities:
Mobile

Similarities of style between the two projects can be seen. At this point it was difficult to decide if this was due to transfer of learning from one task to another or if it was a result of a personal approach to all projects.

The second sculpture assignment was that of carving in cast aggregate. This was the first carving experience for almost all of the students. The only exceptions were those in advanced art at this time who were making wood sculptures in cedar.

The cast aggregate was a mixture of 1 part cement, $\frac{1}{2}$ part plaster and $2\frac{1}{2}$ parts zonolite mixed with water and cast in milk cartons. The only tools were paring knives. The aggregate mixture can be carved easily with paring knives if it is kept covered with a plastic bag between class periods.

The aggregate material itself provided considerable motivation. As Mendelowitz points out:

Different children enjoy working in three-dimensions for different reasons but almost all children are stimulated by the shift from work on paper to three-dimensional activity. Children who have difficulties with perspective and foreshortening may enjoy the freedom from these problems that one finds in modeling or sculpture (59:64).

In addition to the material itself, motivation was provided by examples of other students' works, Eskimo and Northwest Indian sculptures and books and magazines with illustrations of primitive and contemporary sculpture. Examples of ancient and modern sculpture clipped from

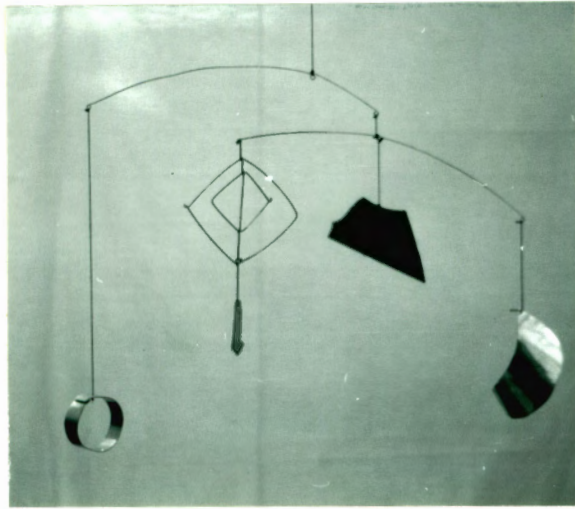


Figure 5. Three-dimensional activities:
Mobile

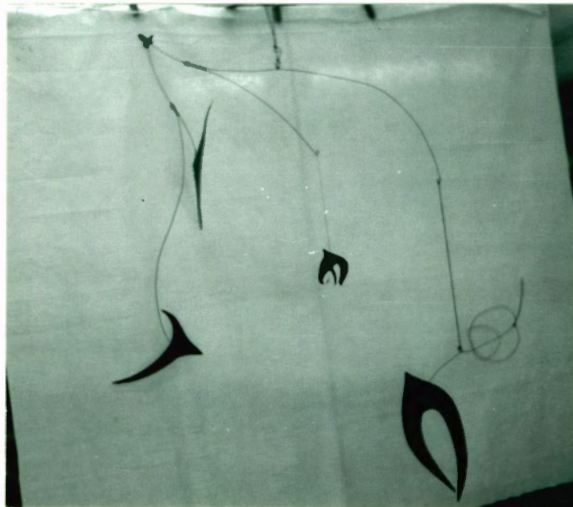


Figure 6. Three-dimensional activities:
Mobile



Figure 7. A comparison of the mobiles in Figures 3, 4, 5, and 6 with the design problems executed by the same students

magazines were posted on the bulletin board in the room.

A discussion followed the showing of artifacts and photographs. Included in this discussion were divergent questions directed to the students regarding the possible qualities of the aggregate material, the possible difficulties in working with the material, the problems peculiar to subtractive sculptures, and the desirable characteristics of a piece of sculpture. This discussion was important because the cast aggregate material by its very nature would not allow the students to work in as much detail as they would like to have done. By the advance knowledge that detail was impossible, they were freed to work more creatively.

The introductory experiences in this medium included the sketching of ideas suitable for execution in aggregate and then the scale modeling of the chosen sketch in pottery clay to work out any problems unsolved by the sketch. The basic problem was to design a three-dimensional solid form to fit within a specific space. The need for good design from all angles was stressed as well as the possibilities of personal interpretation of subject matter.

Figures 8 through 13 show examples of this aggregate sculpture assignment.

Figure 8 was one of the most aesthetically pleasing sculptures in the three classes. This blocky sculpture was made by the same senior boy mentioned in regard to design

No. 4 in Figure 2. The block for this sculpture was cast in a one-gallon milk carton.

The small figure study in Figure 9 was carved from a block cast in a half-gallon milk carton. The contrast of concave and convex surfaces was especially interesting. One sidelight on this figure is that it started out considerably different in conception but evolved into this highly abstract figure as carving progressed. The medium definitely influenced the finished design.

The heads in Figures 10 and 11 show the influences of Northwest Indian totems and masks, Easter Island heads and aboriginal masks. Only the center head in Figure 11 broke completely away from the block shape of the half-gallon milk cartons in which the blocks were cast. Note, however, the individual conceptions of these heads. The features are strong, the elements are simplified and the stone-like qualities of the material have been accentuated.

The expressive head in Figure 12 was carved by a senior boy who was also enrolled in advanced art. This student appeared influenced by Modigliani and by African sculpture.

In Figure 13, the bear on the left was a better-than-average representational sculpture. The animal on the right was carved by a junior boy whose case history appears in Chapter IV. This animal was freely designed to fit the block without regard for "realistic" qualities.

Figure 8. Three-dimensional
activities: abstracted
figure study in cast
aggregate sculpture



Figure 9. Three-dimensional
activities: aggregate
sculpture figure study





Figure 10. Three-dimensional activities:
Heads carved from cast aggregate



Figure 11. Three-dimensional activities:
Heads carved from cast aggregate

The experience in aggregate sculpture was a more "satisfying" one in terms of student feelings about the media and in terms of aesthetic products than was the experience in the making of mobiles and stabiles. Although frustrated at times, the students expressed the desire to try this medium again.

The availability of the materials for this aggregate mixture from the local building supply, the ease by which the cast aggregate can be carved and the genuine satisfaction expressed by the students for this medium recommend this experience for inclusion in any secondary school crafts program.

III. PLASTICS

In addition to being an opportunity to work in a relatively modern material with characteristics all of its own, the experience in plastics was conceived as an introductory experience to that of jewelry. The tools used are, in most instances, the same for both. Sheet plastic is considerably softer than metal, therefore, the skills of cutting, shaping and finishing could be more easily acquired.

The discussion and demonstration which preceded work in plastics stressed the advantages and disadvantages of this material, differences between opaque, transparent and translucent plastics, differences between sheet and casting



Figure 12. Three-dimensional activities: aggregate sculpture head



Figure 13. Three-dimensional activities: animal studies in aggregate sculpture

plastics, the possibilities for creative uses of the material and the use of the tools.

One important aesthetic principle that was discussed in relation to the potential of plastics as an art material was that of "materials honestly used to the best advantage" which meant the development of a design which would bring out the best qualities of the material. Visual materials to illustrate this principle and to stimulate thinking included illustrations of timeless design in articles from the Museum of Modern Art (18:1-96) and examples of modern Scandinavian stainless steel flatware.

To reinforce this discussion an assignment was made for the student's crafts notebooks: each student was told to clip pictures of at least two articles from magazines, newspapers or catalogs. The student was to select and to analyze one article which to him demonstrated good functional design and one which showed poor functional design. Appropriate use of materials was included in this concept of functional design.

Plastics is a relatively new craft medium which requires the acquisition of a specific vocabulary and has many different processes. Therefore, each student was given an illustrated set of instructions duplicated by the teacher covering all of the technical phases of working with plastics as well as definitions of terms. This set of instructions

was prepared by the teacher with the intention that it should aid the student in the execution of his own designs in this medium.

Two projects in plastics were assigned. The first was in the nature of a practice piece to acquire skills in working with the material and to gain knowledge of its potential and its limitations as an art form.

For the introductory assignment, the students designed a simple abstract shape which was executed as a pendent or a key-chain ornament. Consideration of the function of the piece, size, color and shaping was necessary. Before choosing one shape to be executed for this first project, the students made a great number of idea sketches using non-representational and abstract forms.

A few examples of these simple first projects may be seen in Figure 14. The small dark blue shape in the foreground is a pendent that was sawed, filed and finished before being heated and twisted to give it a more three-dimensional effect. The small red objects to the right are earrings and the rectangular shape next to them is a cast plastic pin.

Using the knowledge and skills gained from the practice piece, the students then designed a more ambitious piece involving laminating and cementing or casting of a larger form. These projects could include other processes in their

manufacture such as heat shaping, dying, drilling, embedding of dry natural materials and combining materials.

The materials to be used included acrylic sheet plastic in several thicknesses and colors, polyester casting resin and its hardener, laminating cement, ethylene dichloride cement, casting resin colorants, and assorted dyes. The tools and equipment included a jig saw, hack saws, jeweler's saws, assorted files, "c" clamps, several sizes of wood clamps, drills, assorted finishing papers, tripoli, rouge and electric buffing wheel.

For this second project, possible projects of a functional or expressive nature were discussed. Exploration of new methods and combinations of materials were stressed. Examples of professional products in plastics and glass were shown and posted on the bulletin board.

In Figures 14 and 15 can be seen examples of this second project. In Figure 14 are articles with dyes or dried materials laminated between the layers of acrylic sheet plastics. The large serving tray on the left had two colors of red and pink plus gold dyes marbled in the laminating plastic before it was clamped. The striped object in the center is a cribbage board. In front of the cribbage board is a pair of heat-shaped candle holders. The bright blue object is a gearshift knob. This gearshift knob was constructed of three layers of sheet plastic. The center



Figure 14. Plastics: heat-shaped and laminated projects



Figure 15. Plastics: laminated cribbage board

layer was vivid blue and the other two were crystal. This boy sculpted his piece extensively. The small serving dish on the right was heat-shaped into a shallow bowl and had a heat-shaped handle. The square object behind the serving dish is an example of lamination of dried leaves between two layers of crystal plastic. The object in Figure 15 is another cribbage board. This boy used the power drill to engrave a design on the underside of the top layer, applied dyes to his design and laminated another piece to the back before drilling the holes for the cribbage game.

Plastic materials are relatively expensive, therefore, careful planning to avoid wastage is necessary. Scrap pieces left over from the plastics projects of one term can be saved to be used for the first projects of another term.

The unit in plastics was generally enjoyed by the students. They were surprised at how easily some effects were achieved in this rather soft material. This unit was a good introduction to the use of machine tools for cutting, drilling and polishing that the students would use in jewelry making.

IV. JEWELRY

This unit was intended to give the students an opportunity to explore many facets of designing with metals. Possibilities to be explored were enameling on copper,

applied metals and the setting of "tumbled" stones.

The materials available were sixteen and twenty gauge copper; eighteen and twenty-two gauge brass; sixteen gauge fine silver; twenty-two gauge silver and copper wire; assorted transparent and opaque colors in ground, thread and lump enamels; soft solder; liver of sulphur and assorted jewelry findings. The tools and equipment included jeweler's saws, assorted files, aircraft snips, kilns, torches, tweezers, hammers, pliers, bench pins, drills, hand vises, steel wool, finishing and polishing compounds and a buffing wheel.

The demonstration and discussion which preceded the work brought out the possibilities and the limitations of the materials, the differences from previous media, the basic tools and techniques, safety precautions around the power tools, and the relationship of design and functional factors to the particular qualities of the materials. It was pointed out that many of the skills and techniques practiced in working in plastic could be applied to this new area.

In discussion and demonstration the students were shown examples of hand crafted jewelry which showed some of the great variety of approaches to design in metal. Fundamental processes and techniques such as cutting, filing, hammering for decorative effect, soldering, oxidizing and

polishing were demonstrated.

For each student's use, a duplicated set of illustrated technical instructions and vocabulary was made up by the instructor. This set was intended to help to individualize instruction by assisting the student to work more effectively on his own.

Extensive use was made of books and magazines for stimulation and motivation. These included Craft Horizons, Dali's Jewels, Creative Crafts, Crafts Design, How to Make Modern Jewelry and the film Surrealism.

In addition, to acquaint the students with outstanding examples of past and contemporary artists in metals, a research assignment was made. This assignment required sketches in colored pencil or pen and ink of two contemporary pieces of jewelry and two historical pieces. These pieces could not be traced, and were to be properly identified. The students were to look for construction methods and for techniques for surface treatments as well as the originality of the design.

As in plastics a number of sketches and a practice piece were required. It was felt by the instructor that there was a need for an initial period of exploration to discover the potentialities of the medium. Because design in jewelry and the methods of fabrication are so closely related the students gained valuable experience in this

initial project which enabled them to have a more creative approach to their succeeding work. The initial projects were simple experiments to obtain textural effects with a hammer, shaping, annealing, and soldering. Practice pieces in enameling were made to try the various types of enamels available and the different techniques suggested in their set of instructions.

Suggested design ideas for enameled or applied metals pieces were non-representational forms, non-regular geometric or curvilinear shapes and abstracted natural forms. Textural effects and the relationship of applied parts to the total design were discussed. Function of a piece of jewelry and how this function affected its design was discussed. The instructor stressed that all parts should be related to the whole. This included the opposition of parts if this was to be a pair of earrings, the pendant hole's relationship to the rest of the shape, and the proper placement of each jewelry finding.

In Figure 16 are a few examples of enameled pieces. The two larger shapes were hammered and formed before being enameled. They were also counter-enameled. Note that in some of the pieces the enamel lumps and threads were "swirled" and in others these pieces were allowed to maintain their shapes.

Figures 17, 18 and 19 show examples of applied metals.

A variety of finishing techniques is evident. Some of the pieces have an antiqued finish which results from hammering and then oxidizing the surface with liver of sulphur solution. The color photographs do not show too clearly the fact that in some of the pieces there is not only a contrast of smooth and textured areas but also a contrast of brass and copper metals.

In Figure 17 the pendant on the right was executed by a boy with one of the lowest I.Q. scores in the three classes. He developed rapidly in crafts when he could see results immediately which were aesthetically pleasing to others. A case history of this student appears in Chapter IV.

Also in Figure 17, the pendant in the upper center was made by the same girl mentioned before who made designs 3 and 8 in Figure 1. Note how she related the hole for the pendant chain into the total design. She oxidized her pendant and then polished the raised portion. This same student made the circular pin in Figure 18, which has a mounted stone in the center.

The large circular pendent in Figure 19 was made by the same boy who carved the unusual animal shape in Figure 13. The shape evolved from a "found" piece of metal and was the largest and heaviest of any made in class. It was brass with appliqued pieces of hammered and oxidized copper.

In Figure 17 the large free-form pendant in the center



Figure 16. Jewelry: Enameling on copper



Figure 17. Jewelry:
Metal applique
pendants

was made by a senior boy who was taking advanced art at this same time. This boy, however, did not work up to his ability. This was one of the few pieces that he carried to completion during the term. The brass design was sawed out with a jewelers' saw and filed before being soldered to the copper shape. He integrated the pendant hole into the design of the upper part of the appliqued metal.

The setting of "tumbled" stones was the third jewelry project. Although considered finished polished stones, these tumbled stones are irregular in shape. This fact is both an inspiration for a creative solution to the problems involved in setting these stones and also a source of frustration. Although interesting in color, shape and texture these stones are difficult to hold and to set. No two designs using these stones are identical because the shapes of the stones vary.

The simplest solution to the problem of setting these very irregularly shaped stones is to "cage" the stone with wire leaving a loop of the wire at the top to form a pendant. The only tools required for this method are pliers and fingers.

Many solutions to this assignment evolved without much sketching but instead were motivated by the materials themselves. The soft silver wire was easily formed to the shape of the stones.



Figure 18. Jewelry: Metal applique pins



Figure 19. Jewelry: Metal applique pendants

In Figure 20 are several examples of "caging" of the stones. About one foot of twenty-two gauge silver wire was used to make each of these pendants.

In Figure 21 are two examples of "caging" which used copper wire. The large black stone in the upper right was obsidian, therefore, the wire was reflected through it. The copper wire contrasted well with the black obsidian. The keychain ornament in the right center was caged with hammered copper wire. This was the only student that altered the shape of his wire although this was one suggestion that had been made to the class.

Another solution to the problem of setting the tumbled stones is to cut a piece of sheet metal in such a way as to form prongs to fit over the stone to hold it in place. This was accomplished by first cutting a pattern in copper or aluminum tooling foil to fit the particular stone before cutting the silver or brass. All soldering and most of the finishing processes were done before inserting the stone.

Examples of this alternate method of setting the stones can be seen in Figures 20 and 21.

In Figure 20 are two pendants with silver settings. The white stone in the center had a wire loop soldered to it for a pendant before the stone was inserted. The yellow stone to the right of center simply had a hole drilled for hanging.



Figure 20. Jewelry: Caged stone pendants



Figure 21. Jewelry: Metal applique and caged stone projects

Three tie bars are shown in Figure 21 which have stones clamped onto them with prongs. The copper setting was soldered to the tie bar before the stone was set into it. The other tie bar and the two tie tacks in this illustration are examples of appliqued metal.

Four examples of rings are shown in Figure 22. The caged stone on the left was made by the same student that carved the aggregate sculpture in Figure 8. A similar ring was made by a girl in the same class although using a larger flat stone. The simple ring which is second from the left had an ingenious solution to the problem of the seam where the two ends of the ring join. He simply placed the initial over the seam, thus eliminating the appearance of a seam. The ring on the far right was made by a boy whose case history appears in Chapter IV. The ring is brass and the inset is a piece of polished black acrylic plastic. The student obtained the initial elsewhere and insisted upon mounting it in his ring.

Judging by the reactions of the students, this unit in the making of metal jewelry was the best liked during the entire term. This unit also received the most favorable comments from other members of the student body and teachers when placed on display in the main hall.

From both the craftsman's standpoint regarding skills and techniques and from an aesthetic standpoint, the unit



Figure 22. Jewelry: rings

was the most satisfying during the term. Possible reasons for this were (1) the long introduction to this unit provided by the plastics unit, and (2) this unit represents the culmination of several design principle applications. The students were able to draw upon previous learnings and concepts, thus freeing them for a more creative response to the problems.

V. TEXTILES

In the last unit of the school term the students were introduced to the possibilities of decorating fabrics by the processes of stenciling and batik.

The introductory experience in this unit involved the exploration of the design possibilities of objects in nature. The students were to use an abstracted natural form as the basis of their stencil or batik design.

The students were asked to bring a variety of leaves, branches, fruit and flowers to class to sketch. Each student chose one object. He first drew it realistically, then abstracted it into flat planes suitable for stenciling in two or more colors and finally worked out either a repeat pattern for printing yardage or a coordinated design for printing on some useful cloth such as a golf towel or place mats. The materials for this design sequence were white and colored papers, water colors and ink.

Demonstration and discussion involved the showing of commercial fabrics, the cutting of stencils, the use of stencils in printing and textural effects possible through a variety of means.

For the few students desiring to try the batik process, the demonstrations also showed the preparation of the fabric, methods of applying the wax resist and the several unusual effects obtainable through crackling the wax and the application of the dye. Creativity in the combinations of the use of the wax and dye, color effects, and the utilization of accidental effects were stressed.

Teaching aids for this unit consisted of a bulletin board display of examples of contemporary fabrics and large teacher-made charts showing the steps involved in each process.

Resource materials for this unit included Crafts Design; illustrations of batik designs from Java, tapa cloth designs from Polynesia, Northwest Indian art, Peruvian textiles, and ancient Mexican designs; prints of paintings by Rouault, Pollock, etc.; and the film Non-Objective Art.

In this unit previous art and craft learnings were utilized including design principles, aesthetic understandings, drawing and painting skills and a review of color theory.

The materials for stencil printing were stencil paper,

scissors, stencil knives, bristle brushes, textile paints, thinner, extender and an electric iron to set the colors. For batik the materials included paraffin, electric hot plate, brushes for the wax and for the dye, commercial dyes, large kettles, newspapers and an electric iron.

The students brought suitable washed fabrics from home. These fabrics ranged from old sheeting to fine linen weaves and terry cloth. Some of the designs were adapted or enlarged for application to such varied articles as terry cloth beach shifts and golf towels. Figures 23 through 29 show examples of these projects.

In Figure 23 are examples of all-over designs on terry cloth. Note that the design in the lower left was given a ~~one~~-quarter turn before each printing, thus forming a larger square. This cloth was intended for a beach pillow cover. The design in the center was by the senior girl already mentioned in regard to Figure 1 and 17. The terry cloth took the textile paint very well.

In Figures 24 and 25 the stenciled designs were printed on smooth fabrics in all-over, border and spot patterns. The fabric on the left in Figure 24 was printed by the same girl with the low I.Q. mentioned in regard to designs 9 and 10 in Figure 2. She had difficulty in grasping the relationships of each separate design to the repeat sequence.

Four placemat designs are shown in Figure 26. The



Figure 23. Textile printing: terry cloth stenciled designs



Figure 24. Textile printing: allover, border and single prints

fabrics for these placemats ranged from rough muslin to very fine linen-weave rayon. It was suggested to the students wishing to do placemats that they repeat some element of their basic design in the opposite corner. As can be seen, two students repeated their design exactly, one introduced a variation on his design and one repeated a section of his basic design.

Two golf towels are shown in Figure 27. The design in the golf towel on the left was repeated three times with variation in the placing and in the colors used. The fabric is unbleached linen. This particular golf towel was duplicated several times by the student and his mother to be sold at a local hospital guild benefit sale. The golf towel on the right was made by the same junior boy that was referred to in regard to the animal in Figure 13 and the pendent in Figure 19. He was not pleased with the "unreal" effect of the greens and the placement of the objects and left this project behind at the end of the term.

In Figure 28 can be seen a terry cloth beach shift with a large abstracted flower form on it. The flower was abstracted from an apple blossom and branch. She blended her colors directly on the fabric by brushing over the edge of the stencil toward the center of each open area. Thus creating almost a three-dimensional effect. This particular project was the one assignment carried through to a



Figure 25. Textile printing: all-over designs



Figure 26. Textile printing: placemats



Figure 27. Textile printing:
golf towels

satisfactory conclusion by this senior girl during the entire term. She became quite involved in the creation of this large design as well as its application to this particular garment. She became quite motivated through the desire to have some garment that no one else would be able to have.

The decorated sweatshirt in Figure 29 was made by a senior boy. This was the boy mentioned in regard to design No. 2 in Figure 2. This design appeared to be a result of rebellion and a desire to be "different." A case study of this senior boy appears in Chapter IV.

No designs were finished in the batik technique although three were begun. One project was dropped by a student when he lost interest in school work after finding out that he would not graduate, another student was ill and the other found that he did not like the accidental qualities of the batik technique and switched to a stencil design. An analysis of the possible reasons for the lack of interest in batik appears in Chapter IV.

The unit in textile printing, although the subject of some misgivings at first on the part of some of the students, gained in popularity as results became evident. Projects as mentioned before included beach and golf towels, garments, placemats and all-over printed fabrics.



Figure 28. Textile printing:
terry cloth beach shift



Figure 29. Textile printing: sweat shirt

CHAPTER IV

ANALYSIS OF DATA

Although much data were accumulated which had a bearing upon the study, only an analysis of pertinent data will be presented in this chapter. Chief interest was the type of student selecting crafts, the individual needs of the students in crafts, policies of the counselors' office, student reactions to the crafts experiences and the teacher's evaluations of these experiences.

I. STUDENTS IN CRAFTS

Crafts at Wenatchee Senior High School is an elective course without prerequisites which may be elected by a student for one or two terms. In general, crafts draws students from the same academic strata as boys' and girls' home economics, art and woodshop.

The eighty students in this study were divided as follows:

<u>Year in School</u>	<u>Boys</u>	<u>Girls</u>	<u>Totals</u>
Seniors	23	17	40
Juniors	20	7	27
Sophomores	<u>9</u>	<u>4</u>	<u>13</u>
	52	28	80

Two totals are significant in the table: (1) seniors

comprised half of the enrollment in crafts, and (2) boys out-numbered the girls nearly two to one.

The Wenatchee High School counseling office endeavors to place students in classes in which they stand a reasonable chance for success, classes in which the students have an aptitude and interest, and in classes which meet state and local graduation requirements.

A definite effort is made by the counseling office to avoid using crafts, art, home economics and woodshop as "dumping grounds" for school misfits, underachievers, and other problem students. However, there are a number of factors operating within the mechanics of scheduling students into classes which tend to select certain students for these classes and to eliminate others.

College entrance requirements eliminate a great number of students who might be interested in taking one of these courses. Students with strong academic programs find it difficult to take many electives in the arts or crafts. Unless a student has an interest in crafts acquired in junior high school or outside school he will in all probability choose some other elective such as art appreciation rather than crafts. During the school year 1963-64 only one student belonging to the National Honor Society chose a course in crafts. He commented that, although he would like to have taken an entire year of crafts, he could only spare one

semester due to his tight schedule.

Another factor which selects students is that of prestige or hierarchy of classes in student esteem. In conversation with counselors and students reference was made to a feeling held by the general students that art was a more prestigious class than crafts. The connotation was that art was more intellectual and crafts more manual. It was thought that this feeling quite possibly swayed the choice of class for some students.

Perhaps one of the most important factors in the selection of craft classes by students is the motivation of many students toward classes thought to be easy--courses in which it was thought that little or no homework would be required.

During the course of the school year the instructor found that many of the students either couldn't or wouldn't read duplicated instructions. This avoidance of reading was discussed with counselors and it was felt that this was part of the general pattern of the underachievers or low self-motivated students who comprise a considerable portion of the crafts enrollment. This was also reflected by the large group of low scores on Table III, page 111.

At the time this study was conducted, Wenatchee Senior High School did not have provisions for special education of the slow learners or the mentally retarded. These students were placed in the slower level of academic classes

and in the regular classes in art, crafts, boys' and girls' home economics, and woodshop. If such a student was working up to his or her ability and still could not do passing work, the student was then to be given a special "E" grade for effort but which would give him non-transferable graduation credit.

A questionnaire was given to the students at the beginning of the semester which requested information on each student's previous art and/or crafts background, other art courses being taken concurrently with crafts, any outside school crafts activities, previous instruction in design principles and reasons for taking crafts.

Table II on page 109 show the previous art and/or craft experience reported by the students.

Of the eighty students in this study twelve signified that they were without previous art or craft experience. Of the remaining sixty-eight students, twenty-four indicated that they had one previous semester of art or crafts, thirty-two had two semesters and twelve claimed three or more semesters. This included both junior and senior high school experience in art, crafts and art appreciation. Eight of the sixty-eight stated that their only previous experience in these classes was in junior high school.

In response to the question regarding outside-school craft instruction, only twelve students of the eighty

answered in the affirmative. This experience ranged from short periods of time at church camps, Boy Scouts and 4-H clubs to one girl who worked consistently at home on projects of her own devising. Only two of the twelve affirmative answers were from boys.

Regarding previous instruction in design, only ten students stated that in art, art appreciation or in a previous art and crafts class they had been instructed to design principles. However, only two listed some of the principles as requested.

The answers to the question regarding reasons for taking crafts were revealing of student interests and attitudes. The students were informed before completing the questionnaire that the author wished an honest appraisal and that the answers would be kept confidential and would not be revealed to the school administration or counselors. The overt reasons given for choosing crafts fell into five general categories: (1) twenty-two students replied that they were simply taking the class for the credit toward graduation; (2) forty-six indicated that an interest in crafts, a desire to work with their hands or just wondering what crafts might be like led them to choose the class; (3) eleven indicated that there was no particular reason for enrolling in crafts; (4) two boys stated that they were in crafts unwillingly; and (5) two chose crafts because they thought that crafts

TABLE II

PREVIOUS ART AND CRAFT
EXPERIENCE BY CLASS
AND BY SEX

Experience by Semesters	Period 1		Period 6		Period 7	
	Boys	Girls	Boys	Girls	Boys	Girls
None	4	1	6	0	2	0
Junior High only	3	1	0	2	2	0
Junior High						
Crafts one semester	0	0	2	1	0	0
Art one semester	10	3	5	1	4	6
two semesters	0	1	1	0	4	0
three semesters	0	0	0	0	0	0
High School						
Crafts one semester	4	6	12	2	10	10
Art one semester	4	4	3	3	1	0
two semesters	1	0	3	0	1	0
three semesters	0	1	0	0	0	0
four semesters	1	1	0	0	0	0
Art Appreciation	3	2	2	3	1	2
Art courses currently being taken						
None	12	5	11	5	12	11
Beginning art	2	1	1	0	2	0
Advanced art	2	1	3	0	1	0
Art Appreciation	1	2	0	1	2	0
Total previous classes taken in junior and senior high school						
one semester	3	3	2	4	8	4
two semesters	7	4	5	3	6	7
three or more	2	3	6	0	1	0

would be fun and easy. The reasons enumerated add up to more than eighty because several students indicated multiple reasons.

The permanent records of the eighty students in this study were examined. Scores on Otis I.Q. tests and on the Iowa Test of Educational Development were noted. Ten ITED scores were unavailable for a number of reasons. Additional data was available on the graduating seniors. Class rank at graduation in the class of 338 students and G.P.A. were on the permanent records of the seniors.

Average I.Q. nationally of the high school population lies somewhere between 95 and 105 which is considered the normal range. However, the Wenatchee High School counseling office has found that the Wenatchee average I.Q. is approximately 108. The average of the seventy-four I.Q. scores available of craft students in this study was found to be 99.7 which is considered to be the low-normal range for Wenatchee High School.

The Wenatchee percentiles for the Iowa Test of Educational Development are slightly higher than the national norms. Table III on page 111 compares the Wenatchee percentiles with the composite ITED scores for the seventy crafts students for which ITED scores were available. In addition, the bar graph shows the number of students enrolled in crafts receiving that score on their ITED.

Note that in Table III on page 111 that there are two clear modes at the 48th Wenatchee percentile and at the 14th Wenatchee percentile. The 32nd percentile represents the median of the seventy scores available. The median is a more meaningful measure in this tabulation than the mean because one score in the 98th percentile is 13 percentile points higher than the next highest score.

An evaluation by the counselors and the instructor of these scores and of the student achievements in classes brought out the following points: (1) the average student in crafts is, generally speaking, below the average of the Wenatchee High School population in all classes both academically and intellectually; (2) several factors operate to select students for crafts: college entrance requirements, prestige of classes, avoidance of difficult classes and interest in art and crafts; (3) the below-average student choosing crafts is characterized by low self-motivation, seeking for avoidance of failure rather than aspiring for success, and exhibits more deliberate than spontaneous creative ability; (4) the average student choosing crafts is more self-motivated, expects some failures and some successes, and may be either spontaneous or deliberate in his approach to creative expression; and (5) the above-average student chooses crafts generally because of interest, expects success and is either a deliberate medium to high or a spontaneous

medium to high in his creative work.

II. SELECTED REPRESENTATIVE CASE HISTORIES

Corresponding roughly to the number of seniors, juniors, and sophomores in the three classes, nine students were selected as being representative of the eighty students in the study. Chosen were five seniors, two juniors and two sophomores. Two of the nine students selected were girls.

1. Student J. F., senior girl, 100 I.Q., 12 ITED score, in the 32nd Wenatchee percentile, graduation rank 128 in a class of 338, 2.69 G.P.A.

This girl had perfect attendance in grades seven through twelve. She was very quiet to the point that it may have harmed her in some classes. She was highly motivated to achieve in school. She even worked hard to help G. G. (another student in this study) to graduate. Teachers rated her above average in all areas. She was enrolled in her third year of high school art at the same time that she was enrolled in crafts.

This girl executed designs No. 3 and 8 in Figure 1, the pendent in the upper center in Figure 17, the circular pin at the upper right in Figure 18, and the all-over pattern on terry cloth at the center in Figure 23.

Her work at the beginning of the term corresponded to the "deliberate" end of Burkhart's "spontaneous-

deliberate continuum." Her work in art classes was also characterized by deliberateness. She was skilled at space relationships and organization of visual elements but responded with stereotyped solutions to problems. She needed divergent questioning by the author to bring her away from her original concepts.

The author felt that the pendent in the upper center of Figure 17 represented the most spontaneous response of this student to a problem during this term. Although growth was evident at the end of the semester, it will be necessary for this student to make a conscious effort in the future to avoid the usual and to seek the creative expression.

2. G. G., senior boy, 84 I.Q., 5 ITED score, 1st Wenatchee percentile, graduation rank 332 in a class of 338, 1.15 G.P.A.

According to his records, this student was a seven-semester student in high school. He had very little scholastic ability. The extra semester was caused by an operation in the spring of 1963. He was never well-motivated towards school subjects. His interests centered around the armed services. He was active in the reserves throughout the time that he was in high school. He was never a discipline problem in school.

This is the student helped by J. F. to finish school.

The counselor's evaluation of this student was that he always had big ideas about what he wanted to achieve in life, not realizing that he did not have the ability. This was also evident in his work in crafts. He began ambitious projects, and couldn't meet completion deadlines. He commented to the author that he wished that more time could be spent on each project because he felt that he could do much better than he had been doing if he could have had more time.

His beginning design projects indicated low creativity potential, low spatial sensitivity and only average ability to organize design elements.

The author and his friend J. F. worked hard with him. Evidence of growth can be seen in the sequence of his projects as seen in Figures 14, 17 and 23. The cribbage board in Figure 14 was complicated involving three layers of acrylic plastic and necessitated much extra work. The pendent on the lower right of Figure 17 was this student's most aesthetically pleasing project as well as displaying the best craftsmanship. The stencil design in Figure 23 was rotated by the student without being specifically suggested by the author. This was thought to be an example of growth of design understandings.

Crafts became important to this student. He really

tried to achieve in this class. This effort was reflected in the better-than-average workmanship of his projects.

3. R. C., senior boy, 129 I.Q., 14 ITED score, 48th Wenatchee percentile, graduation rank 238 out of a class of 338, 2.07 G.P.A.

This student was in trouble in school several times. He had been suspended and was on probation for rule infractions. In classes requiring outside preparation he did poorly. He was consistently marked down by teachers in the areas of dependability, concern for others, leadership and initiative. His counselor stated that this student appeared to be shy and negative at first in a conference but would open up and talk freely as the conference progressed. This was also the author's experience in class when the student was by himself. When by himself he was courteous, intent upon his work and appeared to be appreciative of any assistance. However, when with his peer group, his attitude changed markedly to an air of carelessness and bravado.

The design problems indicated better-than-average creative ability, spatial sensitivity and ability to organize design elements. He was probably a spontaneous-medium student. This student made designs No. 3 and 4 in Figure 2. He carved the large aggregate sculpture in Figure 8 during the time that his friend D. P. was

out of school on suspension. He worked hard on this sculpture and was well pleased with the results. He made a gear shift knob (not illustrated) in the plastics unit that was above average in design and craftsmanship. He made one of the tie bars with set stones in Figure 21 and the ring with the red tumbled stone to the left in Figure 22. He did not complete his textile design due to graduation pressures.

This student was a problem in many of his other classes but was not a problem in crafts probably because he liked to work with his hands and because the author made a special effort to reach him.

This boy was an above average student in crafts even though he did not have to work hard to produce his projects. He probably did not work up to his potential.

4. D. P., senior boy, 128 I.Q., 25 ITED score, 98th Wenatchee percentile, graduation rank 157 out of a class of 338, 2.55 G.P.A.

According to counselor's records he was a consistent trouble maker. Even though he was on probation, he would break rules. He was a leader in his gang and led many boys into trouble. He had a record at school and with the police. His ability was excellent, but the quantity and the quality of his work never came close to his ability. He was not motivated in many subjects. He

could earn above-average grades without trying.

In crafts he was also a trouble maker. He could do work better than the class average without trying hard. His design tests indicated superior potential in creativity, ability to see space relationships and to organize design elements. However, his class work failed to come up to the potential indicated. His attitude appeared to be "I can do it, so why try?"

He was out of school on suspension when the class carved in aggregate, he made numerous simple key chain tags for his friends from scrap plastics on his own time after school, he made one of the stone set tie bars in Figure 21 and stenciled the sweat shirt in Figure 29.

This student chose crafts because he needed the credit for graduation and saw crafts as an easy class in which to get this credit. Conversation with the student revealed that he found there was more to the class than he had expected, but that it was still easy for him. With his abilities it did not matter in what sequence the units of craft media were, he could grasp fundamentals and concepts easily.

In the author's opinion, this student did not gain much from the class. He was included in this study to indicate the variety in types of students which might be found in an arts and crafts class.

5. E. G., senior boy, 113 I.Q., 17 ITED score, 68th Wenatchee percentile. He did not graduate with his class because he failed several required courses.

According to counselor's records this student was a discipline problem in high school. He was truant a number of times. Both academic and non-academic work was poor. However, he felt that he could be successful without effort. He was shy and withdrawn and was not particularly accepted by the other students.

This boy made design No. 5 in Figure 2, the large mobile in Figures 6 and 7, the center aggregate sculpture in Figure 11, he did not complete his plastics project, the wing-shaped pin in the center of Figure 18 is his jewelry project, and the placemats on the right in Figure 26. He was also taking beginning art at this same time from another instructor and was failing that class in spite of obvious art ability.

When self-motivated, this student could do superior work in crafts. He appeared to gain confidence during the school term in his ability to design and to execute his design in the craft media. Perhaps this student needed a greater challenge than was afforded in a beginning crafts class. If the particular medium appealed to him, he might have become more involved in a medium in depth.

6. J. S., junior boy, 99 I.Q., 14 ITED score 49th Wenatchee

percentile. Because he was a junior, class rank and G.P.A. were not available. This student fits the average range well in the crafts population in this study and also in the high school as a whole.

Not a discipline problem, this student was well liked by other students and by his teachers according to counselor's records. He appeared best motivated in classes in which he could see the results immediately such as boys' home economics and crafts.

The design tests given at the beginning of the term placed him in the average group--probably a deliberate medium. Design No. 6 in Figure 1 was made by this student. This student made a poor mobile, his aggregate sculpture was a rather two-dimensional non-objective design, the enamel pendent in the upper left of Figure 16 was his, he made the boomerang shaped cribbage board in Figure 15 and a set of placemats (not illustrated) with a stenciled apple motif. The cribbage board was probably his best effort during the term.

This student commented that he had learned a lot in crafts that he could use later. He liked the challenge of the materials and the variety of media offered. This student's growth in understandings and skills during the term was typical of the average student.

7. J. G., junior boy, 94 I.Q., 3 ITED score, 2nd Wenatchee

percentile. G.P.A. or class rank were not available because he was a junior.

According to counselor's records, this boy's standing in classes was in the bottom fourth. His motivation was best in lower level classes where he could see that he was as capable as any of the other students.

This student's design tests were judged to be above the average in originality, lower than average in spatial sensitivity and average in organization of design elements. Typically, they were turned in late.

This student made a very poor mobile, the unusual animal in Figure 13, the candle holders in Figure 14, the heavy round pendent in Figure 19, and the small golf towel on the right in Figure 27.

Even though this student was low in general ability, he was able during the term to acquire considerable skills. His projects were, perhaps, among the more unusual made during the term.

Crafts appeared to meet a basic need of this student to work with his hands. He would spend extra time working and polishing on projects.

8. D. A., sophomore boy, 92 I.Q., 7 ITED score, 9th Wenatchee percentile. G.P.A. and class rank were unavailable because he was a sophomore.

According to counselor's records, this student was withdrawn and slow. He probably did not belong in regular classes. Instead, he might have benefitted from a remedial program. He was below average in all of his classes. This boy made one of the most unusual "variations on a theme" design tests with very involved patterns. His other two tests involving balance were below average.

Regarding his projects during the term, his mobile was one of the poorest, his aggregate sculpture was below average, his plastics projects were average to above average in both design and craftsmanship, in the jewelry unit he made the initialed ring to the right in Figure 22, and didn't turn in a textile design.

Although his achievement in crafts was not high, he appeared to like the class and was at the door every morning ready to enter to begin working. He was deliberate and spent much time in finishing and polishing his plastics projects and jewelry projects. He did not like irregularity in his designs to be executed. Symmetry was characteristic of his projects.

The instructor made a special effort to "reach" this student because he had a health problem and was so withdrawn. Evidence that this student felt more confident in the author's classes is shown by the fact that he

registered for beginning art and art appreciation for the following year to be taught by the author.

9. P. E., sophomore girl, 67 I.Q., 4 ITED score, 2nd Wenatchee percentile. Because she was a sophomore, G.P.A. and class rank were unavailable.

According to the counselor's records, this girl was a low student in all subjects. She could not compete in a normal classroom with average students. She really belonged in a special remedial class but such a class was unavailable at Wenatchee High School during the school year 1963-64. Her English teacher stated that she had a functional spelling list of twenty-three words.

In crafts she could not read the duplicated materials nor could she read and understand printed examinations well enough to pass them. Typically she would score five points on a one-hundred point examination.

Because this student was trying hard to do the work required, the author made a special effort to help her by explaining processes and techniques in as simple a language as possible to her. She was able to carry through about two steps of a process each time.

This girl made designs No. 9 and 10 in Figure 2, her mobile was well below average, her aggregate sculpture was average, her plastics projects were low-average,

one jewelry project was quite good, and her textile printing project is shown in Figure 24 on the left.

It was felt by the counselor's office that crafts and home economics helped this girl's self-adjustment greatly. She was able in these two classes to have some measure of achievement. During the school term the improvement in her appearance and the marked gain in self-confidence was noted by her counselor.

The experience of this girl in crafts indicates that craft work has a function in the education of the mentally retarded. She was proud of her achievements and appeared eager to come to class every day.

III. CRAFT EXPERIENCES

The products of each design and craft experience were evaluated by the author with the help of Mr. Ray Duncan, Wenatchee High School counselor and former art teacher in Wenatchee High School. Evaluation was made on the basis of the criteria mentioned in Chapter III.

Regarding the design tests given at the beginning of the term, it was felt that these few tests provided some basis for later evaluation of a student's work. One modification of the instructions for the "variations on a theme" test was suggested for the following year. This was that the instructions should specify "no regular geometric shapes" to avoid

some of the compass and ruler designs that some of the students made.

The unit in the making of mobiles appeared to be the weakest of all the media offered in this term. Only a few of the students grasped the fundamental characteristic of motion and grace of a mobile. Aesthetically, most of the mobiles were poor. It was felt that this unit might have suffered from being the first in the term and from being a totally unfamiliar medium to nearly all of the students.

If the mobiles unit is to be retained in the crafts program, the suggestion was made that it be moved to a later position in the term. Thus, giving the students more time to become familiar with the elements of design and with tools.

The aggregate sculpture unit was felt to be valuable because it provided a good three-dimensional experience to meet the needs of the many students that needed the challenge afforded by such materials.

Alternate three-dimensional experiences might be subtractive sculpture in plaster or additive sculpture in clay or wood scrap constructions. These activities might be scheduled to precede aggregate carving.

Aggregate sculpture appealed to most of the students. The students complained about the drying effect of the material on their hands but were willing to overlook this discomfort as their projects began to take shape.

The plastics unit was one of the most popular with the students due to the ease by which the material could be worked. The acrylic sheets were much preferred by the students to the casting polyester. One problem arose concerned with designs for execution in plastics. Students had to be restrained from using patterns found in books offering technical information for working in plastics. Some of the patterns in such books are in very poor taste.

Students had difficulty in developing creative approaches to the design of their projects. Perhaps this is because the acrylic and polyester plastics are relatively new media and often appear in very cheap mass-produced articles. Very few well designed objects in plastics are available. The medium of plastics does not have a long aesthetic history as does ceramics, silver and other craft media.

In retrospect, the chief assets of the plastic unit were: (1) the liking of the medium by the students, and (2) its valuable contribution of skills and techniques to the following jewelry unit.

The illustrated instruction sheets made up by the author were not consulted as much as the author expected. Possible reasons for this could be found in the analysis of student motivation and avoidance of reading noted earlier in this chapter.

Plastics are relatively expensive and, therefore, require alertness to prevent wastage. Because the materials are

expensive, some schools might choose not to include work in plastics in their crafts program.

From an aesthetic standpoint it was felt by the instructor and Mr. Duncan that the unit which produced the most pleasing finished products was the jewelry unit. It was felt that this was due, perhaps, to two factors: (1) the long introductory experience offered by the plastics unit, and (2) greater motivation provided by the materials themselves.

If the plastics unit were to be eliminated from the program, it would be advisable to lengthen the time period spent on jewelry making in order to give the students adequate time to acquire the skills necessary to free them for more creative work in metals.

As in the plastics unit, the instructions sets were not used by the students to their full advantage. A few of the students referred to them, but the majority of the students preferred to have the instructor go over the instructions orally. This was true even when a demonstration has just been presented by the author on the very material covered in the instruction sheets.

The textile unit should have been the culminating design unit. It fell short of expectations due to several factors. The major factor being that graduation for the seniors came at the end of the unit. The seniors, with pressures from other classes to complete assignments, had difficulty in keeping up in crafts also.

It was felt by the author and Mr. Duncan that the design sequence at the beginning of the semester might be strengthened by placing the textile unit immediately after the problems in informal balance rather than keeping the mobiles unit in that space. In this way, the printing of the textiles would be a more logical outcome of the design sequence.

In addition, the process of batik might be a separate unit rather than being an alternate to stencil printing in the textile unit. Batik printing offers many exciting possibilities but requires careful attention to the setting up of the work areas to facilitate production.

IV. TEACHING METHODS

In evaluating the teaching methods utilized in this study, it was decided that the sequential development of design understandings was the most valuable contribution of this study. This all-pervading influence was evident most clearly in the products of the latter part of the term.

Next in importance was the assigning of an introductory or practice piece in each new medium. Students were able to work out their uncertainties and gain valuable understandings of the medium in this practice piece. Most certainly this introductory experience in each media should be retained.

The demonstration and discussion method of introducing

each new medium and concept appeared to be the best method. In the discussion, divergent questioning to elicit varied responses was used. This appeared to have great validity for arts and crafts because convergent thinking to arrive at one right response is not desirable in design for crafts. On the other hand, divergent thinking opens the discussion to a variety of possibilities.

Having the resource materials such as magazines and books available in the crafts room rather than in the school library appeared to be a good method of providing stimulation and motivation. In this regard, the extensive use of bulletin boards for the display of illustrations pertaining to the medium being studied, appeared helpful.

There were mixed reactions to the teacher-made illustrated plastics and jewelry instruction sheets. The better students used them and the poorer students, who needed them, did not read them. Perhaps they should be continued in use, simply because they were useful to the better students. These students would keep them to be used for outside school independent work in crafts.

In the final analysis, any instructor's attitude and personality exert a tremendous influence upon the students and their work. Especially with this level of students, the teacher must encourage individual effort, discourage copywork and stereotypes from poor craft texts and be accepting of a variety of creative approaches to a problem.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

I. SUMMARY

In summary, this crafts program appears to fit the needs of Wenatchee Senior High School quite well. As has been noted before, at present the State of Washington does not have a guide for art and crafts in the secondary school. The guide which is now in manuscript form is not a course of study. Certainly, in the arts and crafts a course of study which would apply to one locality might not be applicable to another. There are too many local variables. However, this study may be helpful to another school district in selecting media for inclusion in their general arts and crafts program.

II. CONCLUSIONS

As noted in Chapter IV, a few modifications of the program might be advisable. These changes mainly involve the scheduling or sequence of the units. The program might benefit by the exchange of position in the term of mobiles and textiles, placing textiles at the beginning of the term and the mobiles at the end.

Possibly one unit might be eliminated to enable the

students to work in slightly more depth in the remaining media.

A suggestion was made by another art instructor that a change of name from "crafts" to "applied design" might eliminate a number of the students shopping for easy courses and might attract a higher level of student. Although this might be helpful, a more constructive approach to this particular situation might be to stress in the student handbook under the description of courses and with the counselors that more emphasis is placed on the creative aspect of crafts and less on the simple acquisition of technical skills. In that way students would be aware before they register of the nature of the course.

An analysis of the data on the students and an examination of their work during the term indicates that nearly all of the students benefitted by a greater or lesser degree from this craft experience. The gain in self-confidence and in aesthetic awareness by the students justifies the existence of the crafts program in the school curriculum.

III. RECOMMENDATIONS

Based upon the data collected, it might be well to investigate the possibility of initiating an advanced arts and crafts program to investigate a few media such as ceramics or jewelry in depth. Such a course would have one year of

beginning art or crafts as a prerequisite. This class would be suited to the needs of such students as J. F. with her considerable art background or E. G. who needed to be challenged to use his talent.

One facet of this study presents interesting possibilities for further study. This is the possibility of dividing the crafts students into slow and average classes plus one advanced class for the more able students. This would enable the instructor to individualize instruction to a much greater degree than is possible in a heterogeneous class of twenty-six to thirty students. It would be necessary to limit the enrollment of the slow class to approximately half of the usual class size if any creative work is to be expected.

One implication of this study is that the students with lower mental ability and little motivation toward academic subjects can be helped to a degree of creative expression as great as that exhibited by the average student. This can be seen in the projects created by student G. G. in this study.

If the arts and crafts are to be able to hold their position in the school curriculum, further descriptive studies and surveys will have to be made. The author intends to pursue the feasibility of the advanced crafts class. This will involve the students, the counselors' office and the school administration in addition to surveying the offerings of other schools and their physical plants.

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