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THE RELATION OF QUALITY OF ART WORK TO TWO SOCIO-ECOMONIC VARIABLES (CULTURALLY-ADVANTAGED AND CULTURALLY-DEPRIVED), TWO MOTIVATIONAL VARIABLES (FANTASY AND REALISM), AND TWO BUDGET VARIABLES (FOUND AND EXPENSIVE MATERIALS). FINAL REPORT.

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To furnish art educators with information for improving the art curriculum, this study sought to establish possible relationships between quality art work and the primary variables of student socioeconomic levels, motivation based on fantasy or environmental themes, and budgets using either expensive or free materials. Four sixth-grade classes in two schools (a laboratory school in a culturally advantaged neighborhood and a school in a culturally disadvantaged locale) executed 832 art products, judged by 16 art educators. One class at each school used inexpensive or "found" materials and the other used expensive materials. Greater art quality, craftsmanship, and originality were produced by the use of expensive materials, by fantasy motivation, by students at the culturally advantaged school, by girls, and by academic high achievers. The low-budget art programs considerably diminish high-quality art performance and enjoyment. (This report also includes tables and charts which substantiate findings.) (Author/JP)

THE RELATION OF QUALITY OF ART WORK TO TWO SOCIO-ECONOMIC VARIABLES, TWO MOTIVATIONAL VARIABLES, & TWO BUDGET VARIABLES

Final Report
Project No. 6-8333

U. S. Department of Health, Education and Welfare.
Office of Education
Bureau of Research

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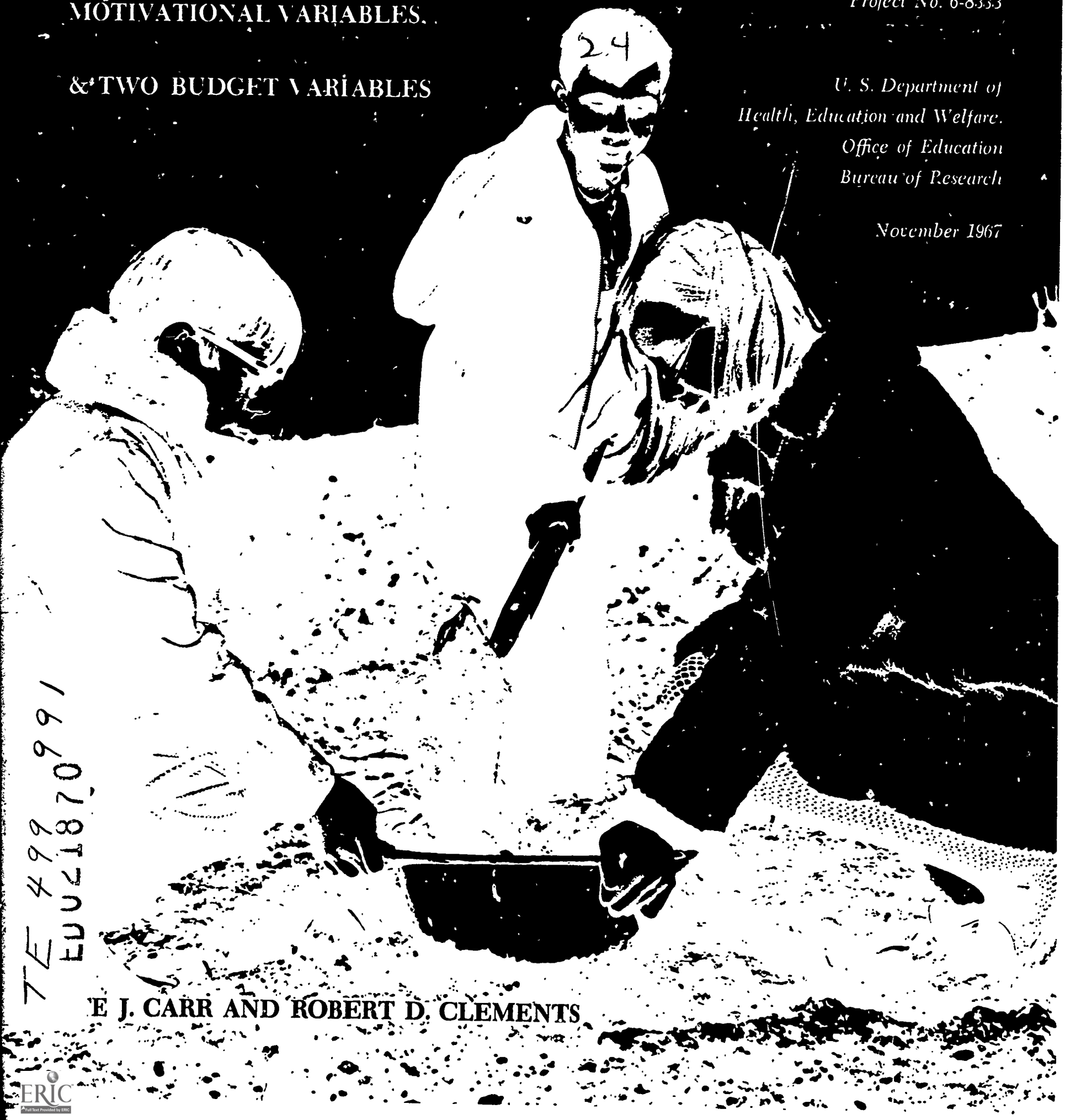

E J. CARR AND ROBERT D. CLEMENTS

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Muncie, Indiana

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

The Investigators would
like to express very deep
appreciation to Miss Blythe
Osborn, instructor of art
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in helping it reach fruition.
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to use in this study.

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I. SUMMARY

A. OBJECTIVES:

The major objectives of this study were four-fold: (1) to investigate differences in the aesthetic merit of art products of 6th grade children from two diverse socio-economic groups, one group from a culturally-deprived neighborhood, the other from a culturally-advantaged upper-middle class; (2) to investigate the effectiveness of two types of inspirational motivation as reflected by the artistic merit of art product quality--one set of motivations drawn from fantasy, contrasted with another set based on environment, (3) to investigate the effectiveness of an innovative art course of study using materials and equipment which are free or of negligible cost as contrasted with a program using an unlimited budget, (4) to formulate recommendations relative to a course of study, motivation, and budgeting in the art program of high and low socio-economic groups.

B. PROCEDURES:

The study was conducted in 6th grade classes at two schools. The student population of one school was drawn from homes of laborers, domestic workers, and relief-dependent parents. The student population of the other school was made up largely of the children of college professors and professional men.

The study was implemented in two classes at each school. One class at each school worked with free or found materials. The other class at each school used supplies from an unlimited budget.

Half of all the lessons which the four classes received were motivated by fantasy themes, the other half motivated by concrete, tangible, or experienced subjects. The project's findings were based on a total of 32 lessons taught by two art teachers; 104 students executed 832 art products, judged by a panel of sixteen art educators. Interjudge agreement was high, .83. Products were judged on artistic quality, craftsmanship, and originality. Participating students judged the lessons on enjoyment.

C. FINDINGS:

Students at the culturally disadvantaged school produced work of lower art quality and less originality. However, the disadvantaged children enjoyed the lessons much more than the advantaged children. Culturally disadvantaged boys and academic high achievers in the disadvantaged school did better work under fantasy motivation.

Expensive materials produced more art quality, craftsmanship, and originality. While price of materials made no difference in art quality at the advantaged school, the expensive materials produced much greater art quality at the disadvantaged school.

As expected, girls did better work than boys, however, the one most successful student in each class was a boy. Using found materials, poor work was done by the boys, especially the lower socio-economic level boys. As expected, academic high achievers, contrasted to academic low achievers, produced more aesthetic work. Fantasy motivation tended to produce greater art quality. More art quality was produced in the upper socio-economic level school through the use of fantasy themes.

Greater enjoyment was experienced: by children from the disadvantaged school, by girls, using expensive materials, and inanimate subject matter. Higher art quality was produced: using expensive materials, fantasy motivations, by girls, by academic high achievers, and by students at the culturally advantaged school.

D. CONTRIBUTION TO EDUCATION:

The findings have provided art educators and administrators proof that high budget art programs will produce more art quality, originality, craftsmanship, and student enjoyment. Advantages of fantasy motivation and cultural enrichment have been pointed out. Results have provided counselors and educators with information regarding the variations between the two socio-economic groups' performance.

II. PROBLEM

The study was built around the converging point of several major problems confronted by art eduators, the specific problems being chosen for their immediacy and interrelationship: Motivation, socio-economic level, art quality, and budget.

The first problem concerns the choice of subject matter which will provide the most inspiring and creative learning situation in the art experience leading to a finished art product. Creativity research findings can be interpreted as favoring both imaginative and environmental motivations. Thus, the choice between subjects observed in the immediate environment and those gleaned from a fantasy world is generally made arbitrarily.

The comparison of fantasy vs. environmental motivations was made to investigate whether a child from a culturally deprived neighborhood might be somewhat impoverished in his ability to dream. In other words, was the immediacy of living so pressing that dreaming was an unaffordable luxury, or contrariwise had his need to escape his environment enhanced his abilities in fantasy play? Parallel conclusions were made regarding similar reactions of students from the well-to-do neighborhood.

A major concern of the artist-teacher is the healthy development of composition and design awareness in his students. What provided a better source of compositional structure, fantasy or environmental subjects? Was the child freer to manipulate the

design elements from his fantasy world, or when confronted with the predetermined arrangement inherent in environmental subject matter? These, too, were questions to be resolved by the study. When the art educator introduces a specific medium or material in the classroom, he must question what themes will lend themselves best to this material. The study investigated the relationships between fantasy-environmental themes and found-purchased materials. Did the improvised and recovered materials lend themselves more to fantasy themes? Did the expensive tools and materials result in more aesthetic products if the theme was environmental?

Among the problems confronted by the public school art teacher is that of defining and thereafter obtaining an adequate budget with which to implement his program. Regarding the importance of quality materials and equipment, there has been, in the past, little or no data with which to convince his administrator or himself as to the degree of enrichment an increased budget would provide.

The quandary of the degree to which the student's creativity increases as he is forced to improvise with free materials is faced by the art educator who is teaching in a situation in which there is an unlimited budget.

Beyond these problems as seen through the eyes of the art educator lies the question of social strata. Should the child in a deprived neighborhood work with expensive art materials which his future earnings would no doubt render prohibitive? Will the students of the upper-middle class have respect for and find fulfillment in

materials that are gleaned from the by-product waste of industry or from their neighbors' alleys?

Thus, it was the purpose of the investigation to study the relationships between these three main variables--socio-economic level, fantasy and environmental, and budgetary levels.

III. REVIEW OF RELATED LITERATURE

The need for curriculum research and reappraisal in depth to meet the interest and abilities of the culturally disadvantaged has been pointed out by several investigators. Among Conant's[6] findings were that half the children in deprived neighborhoods drop out in grades 9, 10, or 11, and that the per pupil expenditure is less than half that in a privileged school. Mendelson and Clements found that the average art expenditure for elementary pupils in Indiana was about one dollar. Thus, the need for the investigation of the potential of low-budget materials and a study of the effectiveness of high and low-cost materials should be of much value for art teachers, especially in culturally deprived areas.

The investigation studied whether fantasy or realism motivations were more effective for culturally-deprived and advantaged children. Deutsch[8], Sexton[31] and others have found that culturally deprived children, being less mobile, infrequently explore and test the outside world. (Deutsch found that 65% of the Negro children had never been more than 25 blocks from home.) Volberding's[35] study of 11-year-olds found the lower class children were less adventurous

and likely inhibited by the insecurity arising from their parents' lack of status. Deutsch maintained that the urban slum offers a minimal range of visual stimuli, fewer pictures, objects, and opportunities for tactile manipulations (½ of the children reported no pen or pencil at home). Rowen[26] stated that the Negro life situation doesn't encourage the belief that one <u>can</u> manipulate his environment.

Contrasted to the cultural deprivation studies are the studies of highly creative children which show that the creative children roam widely, exploring their environment. MacKinnon[16] found freedom to explore was a characteristic of highly creative architects' childhoods. Seelhorst[30] found artistically creative persons have wider environmental experiences. Carter[5] found a strong relation between art ability and auditory sensitivity to environmental sounds. To promote creativity, Torrance[33] and Rogers[25] urged experiences which make children more sensitive to environmental stimuli. Mitchell's[22] study of 44,000 midwest 5th and 7th grade children clearly linked poor environment to escape into fantasy.

	Low Status Children	High Status Children
Do you think there are too few interesting places near your home?	54%	19%
May you usually do what you want in your spare time?	54%	92%
Are your studies or your life so dull that you often think about many other things?	56%	15%
Do you often think of many things that are dangerous?	86%	56%
Do you often have bad dreams?	58%	23%

While the above findings seem to suggest that the low status children are more involved in fantasy and high status children more involved with realism, other findings might be interpreted as suggesting the

reverse. Miller and Swanson[21] found middle class individuals more future oriented, favoring psychological discipline and symbolic reward tending to cause children to develop a conceptual style; in the lower class, physical and tangible rewards were used and children tended to develop a motoric style. Siller[32] also found social class differences in abstract vs. concrete explanations.

Many studies have dealt with the relationship of art experience to personality development. Hine[13] found 6th grade pupils with a low self-esteem were less involved in art experiences; on the other hand, Burgart[2] found a significant relationship of art experience with self-identification. Studies by Mattil[19] and Kollmyer[15] found personal adjustment related to creative products. Hoffa[14] found art involved populations to be less authoritarian; other studies have shown the lower socio-economic groups high in authoritarianism. Lowenfeld,[15] Schaeffer-Simmern[23] and Kane[16] have demonstrated how art experiences can aid personality development. Putney[25] found stutterer's drawings are poorer aesthetically, containing less detail and movement; Palumutlu[23] found creative children use more detail. Hausman[12] found relationships between social status and art spontaneity.

Several researchers have investigated the effectiveness of different types of motivations. Beittel[1] studied differences in strategies of drawing motivated by internal and external subject matter (imagination and memory contrasted to still-life). Schwartz,[29] Douglas,[9] and McVitty[18] found specific types of motivation to be more effective.

The U.S.O.E. research at Ball State of Clements, Mendelson, and Carr studied the effectiveness of subject matter vs. media motivation in elementary grades. Torrance[33] has used fantasy motivations for creative writing tests, e.g. "The Lion That Wouldn't Roar," "The Monkey That Flew." Wolfe[36] has used a realistic writing program for culturally deprived youth, e.g. "Moments of Decision in My Life," "Of Love and Hate." Sanders[27] has suggested realism motivations such as "How to Improve the Environment in Our Cafeteria," and fantasy motivations such as, "What Would Happen If No Living Thing Ever Died," and "If Air Were Heavier Than Water."

Concerning the judging of art products, Getzels[10] found great differences between originality judgments compared to judgments for aesthetic quality and craftsmanship. Originality correlated .9 with discovered problems and -.3 with presented problems; craftsmanship correlated -.5 with discovered problems and .5 with presented problems. The implications, which tend to suggest that craftsmanship and originality are somewhat dichotomous, are very provocative for art education, and the three criteria were used in the proposed study.

Eisner[9a] found culturally disadvantaged children lagged far behind advantaged children in spatial representation development at the early elementary years and did work of slightly lower art quality. He also found high correlations between reading scores and developmental drawing scores in grade five. Surprisingly, he found girls' work in grades 1, 3, 5, + 7 combined was less aesthetic. However, females tended slightly to have somewhat more art quality in their products in grades 5 and 7, and males achieved higher art quality in grades 1 and 3.

IV. OBJECTIVES

The major objectives of this investigation were to study the inter-relationship of the three variables--socio-economic level, motivations based on fantasy or environment, and budgetary levels--and furnish art educators with applicable information for the improvement of the art curriculum.

A. Motivation: Environmental vs. Fantasy

1. To determine which type of motivation, i.e., fantasy or realism provided the most inspiring and creative learning situation as determined by the quality of the finished art product.

2. To determine whether fantasy subjects or environmental subjects were more suited to children from culturally-deprived neighborhoods.

3. To determine whether greater success was found through fantasy or environmental motivation for children from a culturally-advantaged neighborhood.

4. To determine whether a fantasy theme or an environmental theme resulted in better art quality, craftsmanship, originality, or student enjoyment.

5. To determine whether one of the two lent itself more to found materials or expensive materials.

B. Budget: Found vs. Expensive Materials

1. To determine the degree of quality, originality, and craftsmanship which an increased budget provided as judged by finished art products.

2. To determine the degree of quality, originality, and craftsmanship which forced improvisation for materials and equipment provided.

3. To determine whether expensive or free materials lead to greater artistic success for children from a lower socio-economic level.

4. To determine whether inexpensive, found materials or quality, "professional artist" media lead to more effective end products with children from an upper socio-economic level.

5. To determine whether found or expensive materials lend themselves more to fantasy themes or realistic themes.

6. To determine whether the use of expensive materials provides greater enjoyment.

C. Socio-Economic Variables

1. To determine whether the child from a disadvantaged area achieved greater success through fantasy-escape from his environment.

2. To determine whether the advantaged child, being comfortable in his environment, achieved greater success working with his environment.

3. To determine whether the culturally-deprived child was too involved in the immedicacy of living to be creative through fantasy.

4. To determine whether the child from an advantaged neighborhood was so free of burdens that his ability to dream and to create through fantasy is augmented.

5. To determine whether children from an upper socio-economic level worked more successfully with free or costly materials.

6. To determine whether deprived children achieved greater success using inexpensive or expensive materials.

7. To determine whether children from either school enjoyed more the media, the subjects, and the lessons.

D. Enjoyment

1. To determine whether girls or boys, or advantaged or disadvantaged children enjoyed the lessons, the media, or the subject matter more.

2. To determine whether greater enjoyment was provided through the use of expensive or free materials, human or inanimate subject matter, or free choice of subject or dictated subject.

3. To determine the relationship of aesthetic quality, craftsmanship, and originality to the degree of enjoyment.

E. Sex

1. To determine whether males or females achieved more originality, greater craftsmanship, and higher art quality.

2. To determine whether girls or boys enjoyed more the lessons, themes, and media.

F. Academic Achievement

1. To determine if any relationship existed between the students' academic achievement test scores and the quality, originality, and craftsmanship manifested in their art products.

G. Human or Inanimate Subject Matter

1. To determine if human or inanimate themes produced greater craftsmanship, art quality, originality, longer working span, and student enjoyment.

H. Curriculum: Implications

1. To provide a framework on which to build more valid curriculum offerings for art programs in schools of both socio-economic levels.

2. To provide art educators with a direction for choice of motivational subjects for lesson presentations.

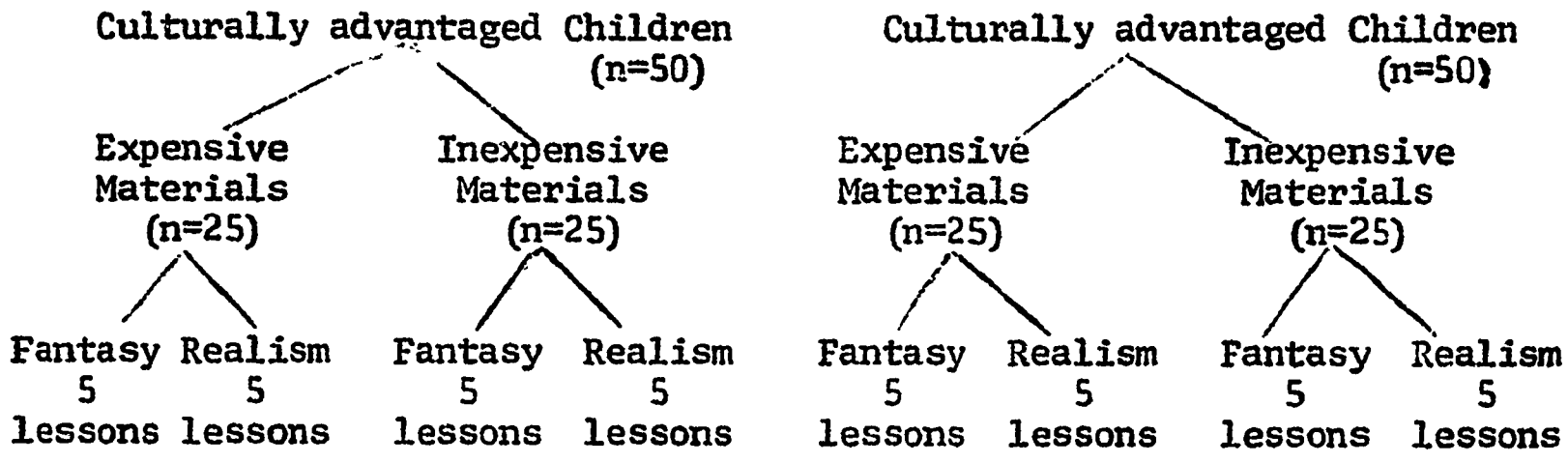
3. To provide a guide to art educators concerning the creative potential inherent in improvised materials or expensive materials.

4. To provide the art educator working in a low-budget situation with a series of projects developed from found or improvised materials.

V. PROCEDURES

A. General Design

The experiment is formed on a 2x2x2 design (two socio-economic variables, two material variables, and two motivational variables).



Totals--104 children, 4 classes, 2 art teachers, 32 lessons, 832 art products judged.

Since one major objective involved a comparison of socio-economic levels, two diverse groups were used. The research was conducted in two schools, a laboratory school in which students came from culturally advantaged homes, and a school in a major culturally deprived area of Muncie.

From each school, two sixth grade classes comparable in academic achievements and art ability were the subjects. The choice of the sixth grade level was made since a sixth grade child has lived in his environment long enough to be affected by it and is of necessity still tied to it. By this time he has developed distinct attitudes

toward acceptance of or resistance to his environment. (In later years, he is able to escape and to somewhat create his own environment; prior to the sixth grade, he may be unaware of the existance of other environmental conditions).

In order to control for possible extraneous variables based on only one teacher's presentation style or personality, two teachers conducted the lessons. Both teachers taught both motivational methods, using both expensive and free materials, in both schools.

The themes of fantasy or environment were contrasted since creativity research has advocated both approaches and has not resolved the question of choice. Creativity studies have emphasized the importance of encouraging imaginative development, which has led to the use of fantasy themes in art education practice, e.g. "Interplanetary Visitors." On the other hand, many of the same creativity studies have stressed the importance of the child's awareness, involvement in, and manipulation of his environment, leading to the use of environmental realism themes in art education practice, e.g. "My Father's occupation." For the experimental design, half the lessons were fantasy motivated and half were environmentally motivated.

Expensive vs. free materials were contrasted since many art students generally work in either a very low budget situation or a high budget situation and since teachers in these two extremes of budget situation are faced with working to raise the budget or working inventively with that which exists. One class in each school worked exclusively with expensive "professional artist" materials and equipment, whereas the

the other class in each school used only found or inexpensive materials.

B. Population and Sample

Subjects were from two sixth grades of the Burris Laboratory School and two sixth grades at a culturally deprived area school in the Muncie Community School System. There were twenty-six children in each class. The Burris School is in a geographic section of the city which takes its population from the children of college professors, professional men and executives. The rationale for the sixth grade sample is explained under 5 A above.

C. Data and Instrumentation

Each student executed eight projects, half of which were motivated by fantasy, half by environment. The 832 projects were judged as to acsthetic merit, originality, and craftsmanship on a two point scale by sixteen art educators and studio artists. This panel of expert judges consisted of specialists from each of the following areas--art education, painting, drawing, printmaking, sculpture, ceramics, weaving, and silversmithing.

Miss Beulah Book, Supervisor of Art, Muncie Community Schools.
Mr. David Cayton, Instructor of Art, teaching printmaking, Ball State University.
Mrs. Phyllis Dannielson, Asst. Prof. of Art, teaching art education, Ball State University.
Mrs. Virginia George, Instructor of Art, Upper Elementary Level, Muncie Community Schools.
Mr. Terry Gibbons, Head of the Art Department, Knightstown High School, Knightstown, Indiana.
Miss Maxine Keene, Asst. Prof. of Art, teaching sculpture, Ball State University.
Dr. Roberta Law, Professor of Art and Administrative Assistant to the Head of the Art Department, teaching weaving, Ball State University.
Miss Alice Lee, Instructor of Art, Upper Elementary Level, Anderson Community Schools.
Mrs. Shirley Libey, Supervisor of Art, New Castle Community Schools.

Mrs. Pam Martin, Instructor of Art, Upper Elementary Level, Muncie Community Schools.
Mr. Robert Pum, Doctoral Fellow in Art Education, specializing in silversmithing, Ball State University.
Mrs. Elsa Reichle, Instructor of Art, teaching elementary art, Burris Laboratory School, Ball State University.
Mr. Marvin Reichle, Asst. Prof. of Art, teaching ceramics, Ball State University.
Mrs. Josephine Richardson, Asst. Prof. of Art, teaching art education, Ball State University.
Mrs. Clara Russell, Instructor of Art, Upper Elementary Level, Anderson Community Schools.
Mr. Ned Tuhey, Asst. Director, Muncie Art Center, specializing in jewelry, Ball State University.

D. MOTIVATIONS

Each class was motivated in half of its assignments by extra-environmental fantasy themes, defined as those which the student has never experienced personally and requiring an exercise of a high degree of imagination. Fantasy and environment motivations which were used included the following:

Fantasy Motivations

Painting	:	Greek Myths ("Icarus", "Endymion", "Orpheus and Eurydice")
Stitchery	:	Fairy Tale of "The Castle Which Rose from the Ground", and free choice from the realm of fantasy.
Sculpture	:	Greek Myths ("Hercules and Antacus", "The Medusa", "Daedalus")
Intaglio Printmaking	:	A choice of "A Royal Scene from the Court of Queen Elizabeth, Queen Victoria, King Arthur, Louis the XIV, King Tuthankamen", or "A Whaling or Viking Scene"
Collage	:	Free choice of Fantasy Subject
Drawing	:	"The Ocean Depths", "Black Magic", or "The Land of Make-Believe"
Jewelry	:	"A Three-Dimensional Amoeba"

Potting	:	"An Incense Burner for a Hindu Palace"
Relief Printmaking	:	"The Ballad of the Old Woman Who Swallowed a Fly" and "Six Blind Men Who Encountered Their First Elephant"

Environmental Motivations:

Painting	:	"Family Portrait"
Stitchery	:	"Something You Have Actually Done or Seen"
Sculpture	:	"Any Person or Pet You Have Known Well or Lived with"
Intaglio Printmaking	:	"Under Our Sink", "Under My Bed", "Inside Our Kitchen Cabinets", "My Closet Full of Clothes", and "A Pile of Old Shoes"
Collage	:	Free choice of Environmental Subject
Drawing	:	"Winter Sports", "A View of One's Own Back, Front, or Side Yard"
Jewelry	:	"Bone Forms"
Potting	:	Free choice of "A Functional Containing Vessel"
Relief Printmaking	:	Free choice of subject matter within the classroom environment.

E. EXPENSIVE vs. FREE MATERIALS AND EQUIPMENT

Drawing:

Expensive: Professional pressed charcoal, textured and tinted charcoal paper.

Inexpensive: The charcoal was made from Sound vines and twigs, carbonized in a two inch iron pipe (6 inches in length), with iron caps threaded on each end to form an airtight container which was placed in flaming campfire for three hours. Paper used was the want ad and stockmarket sections from old newspapers.

Painting:

Expensive: Concentrated oil paints in stick form (Paintstik) by Markal Co., Skokie, Ill., were used on heavy canvas pads.

Free: Brushes were made of human hair, bound to twigs with strings; pigment was vari-colored earths, with liquid starch added as a binder; bluing, mercurochrome, iodine, food coloring, and other materials found at home were also used. Newspaper matrices, obtained free of charge from the city newspaper, provided the painting surfaces.

Sculpture:

Expensive: Plaster and vermiculite was cast in milk cartons and attacked with sloyd knives, files, and rasps.

Free: Masses of core sand from the local metal foundries were sculpted with tongue depressors, nails, and other found tools.

Intaglio Printmaking:

Expensive: Copper plates, commercial grounds, etching needles, and commercial mordants were used. Reeves etching paper was used on a $500 Graphics Chemical Co. professional etching press.

Inexpensive: Shellac poured on illustration board and treated as a drypoint with darning needles or nails was the surface. An old washing machine wringer, gleaned from a dump, served as the press.

Stitchery:

Expensive: Finest quality, brilliantly colored felts were appliqued onto dyed burlaps with multi-colored yarns, embroidery floss, and metallic threads.

Inexpensive: Ragbag fabrics were stitched to discarded pillow cases, sheets, shirts, etc., with found thread.

Jewelry:

Expensive: Pewter, purchased in the form of pitchers, loving cups, basketball trophies, etc. from scrap metal dealers, was melted with Benz-o-Matic propane torches into molds made of plaster and flint.

Free: Beef and chicken bones, sawed into thin diagonal cross-sections, were polished with other bones and assembled into jewelry.

Potting:

Expensive: Pots were made from purchased earthenware clay, glazed with glazes compounded from raw chemicals, and fired in a $2,000 Alpine gas kiln.

Free: The children found and mined clay from a local field with shovels and buckets; it was thinned with water, screened through a 40 mesh sieve, and poured for drying upon plastic cafeteria trays, gleaned from a hospital trash dump. The improvised kiln was made of a 40 gallon oil drum, in which the pots were packed in between layers of sand, under and about which a fire was stoked for twelve hours.

VI. RESULTS

A. Budget: Found vs. Expensive Materials

Expensive materials and equipment clearly produced significantly more (.001) art quality; craftsmanship, and enjoyment of the subject matter. Expensive materials and equipment also produced significantly more originality (.01), enjoyment of the lesson (.01), and enjoyment of the media (.02). Conversely, forced improvisation using the free and found materials was found to clearly produce work of much lower quality, originality, and craftsmanship. Furthermore, children received significantly less pleasure from the use of the low budget materials. This study has made obvious the need for increased budgeting where greater quality and enjoyment of the art program is desired in terms of socio-economic level. At the advantaged school, children showed no difference in art quality as the result of using either high or low budget

materials and equipment. However, at the disadvantaged school, children produced much greater art quality with the expensive materials. This points toward a reversal of the current practices in many schools. Often the schools in higher socio-economic neighborhoods provide expensive art materials and equipment for students while those in lower socio-economic situations provide only poor quality or scrap material for the students. This unfortunate situation is further substantiated by the words of an art supervisor, "If you gave those poor kids good materials, they'd just 'mess' them up!"

This is shown statistically: using expensive materials, disadvantaged children created significantly more (.001) high quality art work than did the advantaged children. Whereas with the inexpensive materials, no difference existed. While the above finding compares the two schools, the following finding compares the budget variables for the disadvantaged school. Disadvantaged children created significantly more (.001) high quality work using the expensive materials than the free materials. On the other hand, with the advantaged children, no differences in art quality resulted from the use of expensive or free materials and equipment.

Total art quality points earned by each class were as follows:

disadvantaged school, inexpensive materials--732

advantaged school, inexpensive materials--1087

disadvantaged school, expensive materials-1189

advantaged school, expensive materials----1392

Boys did significantly poorer work with the free and found materials

and equipment than did the girls (.001). This could also be interpreted to mean that the girls did better work with common materials. Perhaps they are used to playing house with homemade dolls, while the boys' tastes run toward expensive cars, guns, T.V.s, tape recorders, or walkie-talkies.

Free and found materials were scavenged in greater quantities by the children from the disadvantaged neighborhood school.

Expensive Materials	X2 Significance Level
art quality	.001
craftsmanship	.001
enjoy subject	.001
enjoyment	.01
originality	.01
enjoy media	.02
low art quality for disadvantaged school with free materials	.001

B. Motivation: Fantasy vs. Environmental Subject Matter

Considering the effectiveness of fantasy or environmental subject matter motivation, several interesting findings came to light, having many implications in terms of art education motivational practices in disadvantaged schools.

Both disadvantaged boys and the high academic achievers among the disadvantaged students produced significantly more (.001) art quality through the use of fantasy as motivation. This perhaps suggests that

for children of high intelligence, especially the boys, from deprived environments, there is a need to escape into fantasy and to seek expression beyond the immediate environment.

With fantasy as motivation the disadvantaged academic high achievers did significantly more (.001) high quality art work than the advantaged academic high achievers. Whereas, with the children of low academic achievement from advantaged as well as poorer neighborhoods, no differences in art quality existed. This implies that the successful student from the higher socio-economic bracket may find adequate avenues of self-expression within his more comfortable environment.

The disadvantaged boys, doing much better with fantasy, may possibly be revealing a male pattern of greater malcontent among the population of the lower socio-economic society.

While fantasy motivation was superior for only segments of the deprived population, it was found to produce high quality art work for the whole group of advantaged children.

Fantasy motivation, regardless of socio-economic level, tended to produce significantly greater (.05) art quality.

For the entire group of socio-economically advantaged students, fantasy motivation produced significantly more (.01) art quality in the finished art produce than did environmental themes. Perhaps this implies that the advantaged child, eschewing domestic and industrial roles, dreams of more glamorous careers, affordable travel, and adventure.

Total art quality points earned by each motivation in each school are as follows:
Fantasy motivation, disadvantaged school----------989
Environmental motivation, disadvantaged school-----1002
Environmental motivation, advantaged school--------1090
Fantasy motivation, advantaged school-------------1299

Fantasy Theme	X2 Significance Level
art quality	.05
academic achievers X disadvantaged for art quality	.001
advantaged students X art quality	.01
art quality for boys at disadvantaged school	.001

C. Socio-Economic Level: Culturally Advantaged and Culturally Disadvantaged

In reviewing the findings related to the socio-economic variable, culturally disadvantaged children were found to produce much greater quality art work with the expensive materials and equipment than with the free and found materials. No such differences were found for the advantaged children.

Considering just the schools, students from the advantaged school tended to produce higher quality art products (.05), and more originality (.001). This may be due to the school setting and aesthetic experiences of the advantaged children, ie. proximity to the city's major art gallery, more hours of art training in school, more art hanging in the home, a more desirable architectural environment, a more tolerant parental attitude toward exotic and artistic expression, more adequate child art display facilities, and availability

of audio-visual enrichment materials.

Advantaged school students achieved greater art quality (.01) when motivated by fantasy rather than environmental subject matter. Whereas, in the disadvantaged school, fantasy motivation was found superior only for academically gifted students and for male students.

Considering student reaction to the lessons, the disadvantaged students (compared to the advantaged students) to a much greater extent (.001) enjoyed the lessons, the media, and the subject matter of the entire project.

Socio-Economic Area School		X2 Significance Level
(advantaged school)		
	originality	.001
	art quality	.05
	art quality X fantasy motivation	.01
	girls X art quality	.05
(disadvantaged school)		
	enjoyment	.001
	enjoy subject	.001
	enjoy media	.01
	expensive materials X art quality	.001
	boys X art quality for fantasy motivation	.001
	academic achievers X art quality	.001
	free materials X low art quality	.001

D. Enjoyment

Children from the culturally disadvantaged area school enjoyed, to a much greater extent, the lessons (.001), the subject matter (.001), and the media (.01). This clearly indicates the appreciation of the disadvantaged children for enrichment opportunities. Girls, compared to boys, enjoyed the media more (.01), and the lessons as a whole more (.05).

Much greater enjoyment was provided through the use of expensive materials than free and found materials. Expensive materials and equipment were enjoyed significantly more (.001). This reveals the price paid in student apathy for a low art budget situation.

Inanimate subject matter motivations, rather than human subject themes, resulted in greater student enjoyment (.001) at this sixth grade level. Feelings of inadequacy in treating the human figure, so prevalent around the sixth grade age level, may well by the reason for this preference for man made structural subjects, like boats, aircraft, interiors and architecture, rather than the human body.

Students tended (.02) to prefer a free choice of subject (within the area of subject or environmental theme) rather than a dictated subject.

Amount of enjoyment of the entire lesson, including the use of media and thematic material, resulted in finer craftsmanship and art quality (.001). This implies that, when the student is enjoying his work, greater care and concern for the end product will be exercised. More originality is apt to result when the students enjoy the media (.01). This may

suggest that the art educator's judgment of originality may be more influenced by use of media than subject.

Enjoyment	X2 Significance Level
disadvantaged school	.001
inanimate theme	.001
art quality	.001
craftsmanship	.001
expensive materials	.01
girls	.05
free choice lessons	.1
originality	.1

E. Sex

Girls achieved much more art quality, originality, and craftsmanship than the boys, all differences were significant beyond the .001 level. Girls also enjoyed using the varied media more (.01). This confirms the societal stamp of art as a feminine pursuit, which many of the male students have apparently accepted. However, in all four classes, the student with the most art quality points was a boy. In terms of craftsmanship, male students proved to be sloppier in minor details in use of material and equipment, as is generally the case.

Boys did significantly poorer quality work with the free and found materials than did the girls (.001). Boys from the disadvantaged areas produced significantly more art quality (.001) through the use of fantasy as motivation.

The boys from the lower socio-economic neighborhood school produced predominantly low quality work with the free materials and equipment (.001). Perhaps a certain apathy which leads to poor quality work is felt by the deprived boy when he works with scrap materials.

Sex (girls)	X2 Significance Level
art quality	.001
craftsmanship	.001
originality	.001
academic achievement	.01
enjoy media	.01
enjoyment	.05
advantaged school for fantasy motivation	.05
disadvantaged boys for art quality on fantasy motivation	.001

F. Academic Achievement

The academic achievement measure used was the composite score on the Iowa Achievment Test. Most noticable differences were revealed in the relation of academic achievement and art quality, originality, and craftsmanship. Academically gifted students had significantly greater art quality (.001), originality (.01), and craftsmanship (.01). This agrees with the findings of other IQ creativity studies which generally report slight positive correlations between IQ and art achievement. High academic achievers among the disadvantaged students produced significantly more (.001) art quality through the use of fantasy as

motivation than low achievers in the same school. Likewise, this same group did significantly more (.001) high quality art work than the academic high achievers at the advantaged school.

Academic Achievement	X2 Significance Level
art quality	.001
originality	.01
craftsmanship	.01
girls	.01
art quality for fantasy motivation at disadvantaged school	.001

G. Human vs. Inanimate Subject Matter

The use of human themes in lesson motivations resulted in significantly less originality (.001), craftsmanship (.001), enjoyment of the lesson (.001), enjoyment of the subject (.01), and enjoyment of the media (.05). Contrary to the beliefs of numerous art educators that the human figure is appealing subject matter at the sixth grade level, (including a prior finding of this investigator), we found a preference by the children for inanimate subject matter. However, no difference was revealed on art quality.

Inanimate Subject Matter	X2 Significance Level
enjoyment	.001
originality	.001
craftsmanship	.001
enjoy subject	.01
enjoy media	.05
art quality	.1

H. Desirability of Display Location for Judging

The great quantity of work to be displayed neccessitated the hanging of more than half the work below eye level. In order to determine if any difference existed in regard to the judges rating of the undesirably hung and illuminated pieces, a chi square statistic was done. Undesirable hanging resulted in no differences in art quality judgment.

I. Reliability

Interjudge reliability for art quality ratings of the sixteen art experts' judgments was quite high, .831. Reliability for originality and craftsmanship judgments (made by the three art educators who conducted the study) was .714 for originality and .632 for craftsmanship. (See Reliability Tables in the Appendix.)

College studio art teachers scored the work more severely than did the elementary teachers and supervisors. Despite instructions to attempt to mark half the work high quality and half low quality, the college art teacher marked, on the average, 194 out of 832 pieces aesthetic, whereas the elementary teacher marked, on the average, 304 out of 832 pieces aesthetic. The chi square difference was 592, significant beyond the .001 level.

VII. CONDLUSIONS AND IMPLICATIONS

Despite the most ingenious adaptation of free and found materials (to such a degree that it was thought these projects might be far more enjoyable than ordinary expensive art supplies), students did not enjoy working with as much or producing work of as high a quality or originality, using the inexpensive supplies. The price paid for a low art budget is decreased enjoyment, art quality, originality, and craftsmanship. Notwithstanding the inventive possibilities of scrap materials, it is less than desirable to try to "make a silk purse out of a sow's ear," and projects made from inexpensive materials will probably not be as artistic or craftsmanly as projects using high quality materials.

The situation is made worse by the fact that it is usually the disadvantaged area schools which have the low art budgets. We found the deprived children were the very ones who did much better work using the expensive materials; the advantaged school children's art work was not affected by the limited art budget.

This study tends to corroborate studies such as those of Deutsch and Volberding, which have shown the psychologican devastation caused by cultural disadvantagement. We found the children at the culturally deprived area school produced art of lower aesthetic quality, originality, and craftsmanship.

Fantasy themes were found to produce higher art quality, especially for the culturally advantaged children, the culturally disadvantaged boys, and culturally disadvantaged high achievers. This indicates that when the imagination as a creative source is tapped, art work of higher quality may result at the sixth grade level.

The study found judgments of originality, art quality, and craftsmanship were highly correlated (phi coefficients between .46 and .52). However, student enjoyment did not correlate with the above criteria (phi coefficients between .06 and .15); this points out the deep dichotomy between product and process criteria. The implication is that very different results may be obtained in art education research studies depending whether the experiment is judged by art experts for aesthetic quality or by the students themselves on enjoyment.

In summary, the findings have provided art educators and administrator proof of the expense of low budget art programs in terms of diminished art quality, originality, craftsmanship, and student enjoyment. Advantages of fantasy motivation and cultural enrichment have been pointed out. Results have provided counselors and educators with information regarding the variations between the low socio-economic groups' performance.

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Name Vivian Brown 42

Project Number 8-F

Date October 4, 1966

Jefferson and Burris Schools
Sixth Grade Art Student's Responses
Government Research Project
P. Carr, B. Osborne, R. Clements

1. _X_ I thought this was one of the most enjoyable art projects I've ever done.

___ I enjoyed it a little.

___ I didn't enjoy it.

2. _X_ I thought these materials were some of the most enjoyable I've ever worked with.

___ I enjoyed working with these materials a little.

___ I didn't enjoy working with these materials.

3. _X_ I thought this subject matter was one of the most enjoyable I've ever used.

___ I enjoyed this subject matter a little.

___ I didn't enjoy using this subject matter.

Table I

NUMBER OF PRODUCTS JUDGED AESTHETIC FOR EACH PROJECT BY OVER HALF THE JUDGES

Project	Total for 4 classes	SUBTOTALS disadvantaged schools free materials	advantaged school free materials	disadvantaged schools expensive materials	advantaged school expensive materials
Intaglio Printmaking	61	12	21	15	13
Painting	46	5	5	17	19
Jewelry	36	3	10	18	5
Potting	32	2	11	9	10
Collage	29	1	3	16	9
Sculpture	24	5	10	6	3
Stitchery	20	2	0	7	11
Drawing	19	1	1	5	12
Relief Printmaking	11	0	1	0	10
	278	31	62	93	92

Table II

AESTHETIC QUALITY FREQUENCIES OF SCORES FOR EACH PROJECT

Project#	Media	Motivation fant, envir. (F or E)	Budget expen, free ($ or 0)	School advan, disad. (A or D)	Number of Times Product Gained Points															
					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	drawing	E	0	D	2	5	10	1	5	1	1		1								
2	drawing	F	$	D	2	2	3	2	5	5	2	2	3								
3	drawing	F	0	A	5	2	4	4	5	2	3	1									
4	drawing	E	$	A		1	2	1	2	2	2	3	2	3	1	1	1	2			
5	painting	F	0	D	1	3	3	6	2	3	3	0	2	1	0	9	1	1			
6	painting	E	$	D			1	2	5		2	1	1	5		1	2	2		3	1
7	painting	E	[illegible]	A	2	2		7	2	4	3		1	2	1	2					
8	painting	F	$	A			1		2		4	2	2	3	5	1	4	1	1		
9	sculpture	E	0	D	8	2	3	1	2	3	1		3		1	1					
10	sculpture	F	$	D	3	6	7	1		1	1	1	4		1		1				
11	sculpture	F	0	A	11	4			1			1	3	1	1	1	1		1	1	
12	sculpture	E	$	A	3	2	4	5	2	3	4		1		1	1					
16	relief prints	F	$	A	1	1	1	2	3	4	4		1	1	5		1	1	1		
17	potting	E	0	D	9	3	1	2	5	1	2	1	1								
18	potting	F	$	D	5	1	6	2		3		2	3		1	2		1			

Table II (continued)

Project	Media	Motivation fant, envir. (F or E)	Budget expen, free (& or 0)	School advan, disad. (A or D)	Number of Times Product Gained Points															
					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
19	potting	F	0	A	2	2	2	2	1	3	5	4		2	1			2	1	1	
20	potting	E	$	A	3	1	2	2	0	5	3	2	3	1		1	1				
21	stitchery	F	0	D	7	4	6	2	1	2	2	1			1						
22	stitchery	E	$	D	3	5	2	3	4	2				3		2	1			1	
24	stitchery	F	$	A	1	1	3	4	2	2	2	1	0	1			5	2	1	1	
25	jewelry	E	0	D	3	2	4	3	7	2	2	1			1			1			
26	jewelry	F	$	D		3			1	2	2		1	6	3	4	3		1		1
27	jewelry	F	0	A	1	2	3	2	2	2	3	3	2	2	1	2	1				
28	jewelry	E	$	A	3	0	2	5	1	7	3	0	2	1	1			1			
29	collage	F	0	D	4	6	4	1	5	1	4				1						
30	collage	E	$	D	1	1	1	2	1	2	2	3	2	3	3	2	1		1		
31	collage	E	0	A	1	9	1	4	1	5	3		1		1						
32	collage	F	$	A	1	2	4	3	2	3	2	3	0	2	2	1					
33	intaglio prints	E	0	D	3	4	3		2		1		2	4	2	1	1	1			
34	intaglio prints	F	$	D			1	4	3	1	3	4	1	2			4	1	2		
35	intaglio prints	F	0	A					1		2	3	3	3	4	1	2	3	1	1	
36	intaglio prints	E	$	A	2	1	1	3	2	2	2	0	3	0	1	1	1	2	0	2	2
					87	77	85	84	80	77	68	40	48	46	39	25	31	21	10	10	4

Table III

AESTHETIC QUALITY RATINGS BY INDIVIDUAL

JUDGES FOR EACH PROJECT

Project Number	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12	J13	J14	J15	J16	Total
1	20	11	3	3	0	2	3	14	3	7	0	0	0	0	0	1	67
2	9	14	8	7	7	1	8	16	0	0	6	5	5	15	3	4	109
3	13	14	4	5	3	1	10	11	0	0	0	1	0	11	0	4	77
4	17	19	12	16	12	8	9	17	1	2	19	9	8	18	4	4	175
5	16	9	14	9	1	5	8	5	6	5	4	10	1	6	7	10	118
6	19	23	20	18	14	13	14	13	16	11	9	13	9	19	4	5	222
7	10	13	7	4	4	6	17	16	9	3	5	7	2	18	2	5	127
8	19	23	16	22	11	12	3	17	23	9	20	13	16	16	3	1	223
9	8	14	11	2	6	2	6	7	6	10	5	2	2	4	1	1	87
10	11	9	8	1	6	2	7	11	6	9	5	6	1	7	3	3	95
11	6	10	10	6	4	3	9	10	8	9	4	7	8	5	6	5	110
12	9	16	11	2	3	3	10	9	8	10	3	5	3	5	2	3	101
16	17	16	17	13	7	10	13	13	7	14	17	7	4	8	3	5	171
17	15	10	9	0	4	2	4	3	8	4	1	3	0	9	3	1	74
18	18	10	11	5	8	2	3	13	6	7	5	5	4	10	5	5	117
19	21	15	15	11	6	4	13	7	17	11	10	12	2	17	2	7	170
20	19	19	13	5	5	7	6	12	8	10	12	8	5	15	4	3	155
21	9	8	10	3	2	0	4	5	2	2	11	1	0	3	5	2	65
22	12	8	12	7	5	3	6	12	6	9	18	7	3	6	4	1	120
24	19	15	15	12	10	5	9	12	8	12	20	13	8	11	9	2	180
25	11	12	19	4	4	3	12	6	2	3	5	2	3	6	3	4	99
26	18	25	16	17	13	9	19	15	11	14	12	19	6	19	6	6	225
27	15	20	11	12	9	1	18	8	6	12	6	5	1	11	6	8	149
28	15	18	13	5	4	6	8	8	4	9	12	6	0	12	4	0	124
29	12	9	7	0	7	0	5	9	0	4	1	7	3	8	3	1	76
30	18	18	2	9	15	6	15	15	6	12	14	16	12	8	1	3	188
31	14	4	7	1	11	2	9	12	0	1	2	8	2	7	3	6	88
32	14	13	16	3	15	7	12	13	2	8	7	7	5	8	2	3	135
33	13	6	10	15	7	6	8	12	10	9	13	8	3	12	9	7	146
34	12	21	17	15	10	7	15	17	11	9	18	5	6	18	5	8	194
35	16	21	14	21	16	10	13	17	14	15	15	12	12	21	13	9	238
36	16	11	18	14	15	12	14	18	10	12	16	9	4	15	10	6	199
	461	454	394	267	244	160	310	373	207	252	295	238	138	347	135	131	4410

IV. AESTHETIC QUALITY RELIABILITY FOR SIXTEEN JUDGES

ESTIMATED BY ANALYSIS OF VARIANCE

KEY

k (judges) = 16
n (art projects) = 832
G (sum of the X's) = 4410
(1) G^2/kn = 1460.9
(2) $S(\Sigma X^2)$ (same as G for ordinal data) = 4410
(3) ST^2j/n = 1,390,388/832 = 1671.1
(4) SP^2k = 36,699/16 = 2293.6

	Sum of Squares		df	Mean Squares
between products	(4)-(1)	832.7	831	1.0020
within products	(2)-(4)	2116.4	12,480	.1695
between judges	(3)-(1)	210.2	15	14.0133
residual	2-3-4+1	1906.2	12,465	.1529
TOTAL	(2)-(1)	2949.1	13,211	

Inter-Judge Reliability

r_{16} = 1-(MS within products/MS between people) = 1- .1695/1.0020 = .8308*

This can be interpreted as follows: If the experiment were to be repeated with another sample of 16 judges, but with the same art products, the correlation between the mean ratings obtained from the two sets of data on the same people would be approximately .83.

*For further description of method of computation see B. J. Winer, Statistical Principles in Experimental Design, McGraw Hill, 1962, pp. 124-132.

V. ORIGINALITY RELIABILITY FOR THREE JUDGES ESTIMATED BY ANALYSIS OF VARIANCE

KEY

k (judges) = 3
n (art products) = 832
G (sum of the X's) = 1273
(1) G^2/kn = 649.25
(2) $S(SX^2)$ = same as G = 1273
(3) ST^2j/n = 539,861/832 = 648.87
(4) SP^2/k = 3933/3 = 1331.00

	Sum of Squares		df	Mean Squares
between products	(4) - (1)	661.75	831	.7963
within products	(2) - (4)	-.38	1664	.0228
between judges	(3) - (1)	-.38	2	.19
residual	(2) - (3) - (4) + (1)	-37.62		
TOTAL	(2) - (1)	623.75	2495	

Inter-Judge Reliability

r_3 = 1 - (MS within products/MS between products) = 1 - .0228/.7963 = .7137

VI. CRAFTSMANSHIP RELIABILITY FOR THREE JUDGES ESTIMATED BY ANALYSIS OF VARIANCE

KEY

k=3

n=832

G(sum of X's)=1233

(1) G^2/kn=1520289/2496=609.09

(2) $S(SX^2)$= same as G = 1233

(3) ST^2j/n=510725/832=613.85

(4) SP^2/k=2904/3=968

	Sum of Squares		df	Mean Squares
between products	(4)-(1)	359	831	.432
within products	(2)-(4)	265	1664	.159
between judges	(3)-(1)	4.76	1662	2.38
residual	2-3-4+1	260.24	2495	.157
TOTAL	(2)-(1)	623.91		

Inter-Judge Reliability

r_3= 1-(MS within products/MS between products)= 1 '.432= .632

VII. CHI SQUARE ANALYSES FOR ART QUALITY CROSS-BREAKS

Culturally Disadvantaged School
(Art Quality X Budget Variable)

	free materials	expensive materials
high quality	o=31 e=62	o=95 e=64
low quality	o=176 e=145	o=120 e=151

$x^2 = 42.977$ significant beyond .001

Free Materials
(Socio-Economic Variable X Art Quality)

	high art quality	low art quality
disadvantaged school	o=31 e=50	o=176 e=157
advantaged school	o=62 e=43	o=119 e=138

$x^2 = 19.658$ significant beyond .001

Academic Achievers on Fantasy Motivation
(Socio-Economic Variable X Art Quality)

	culturally disadvantaged	culturally advantaged
high quality	o=110 e=86	o=21 e=45
low quality	o=57 e=81	o=66 e=42

$x^2 = 39.883$ significant beyond .001

Fantasy Motivations
(Socio-Economic Variable X Art Quality)

	disadvantaged school	advantaged school
high art quality	o=62 e=78	o=102 e=86
low art quality	o=148 e=132	o=130 e=146

$x^2 = 9.828$ significant at .01

CHI SQUARE ANALYSES FOR ART QUALITY CROSS-BREAKS

High Quality Work Under Fantasy Motivation
(Socio-Economic Variable X Sex)

	disadvantaged school	advantaged school
boys	o=76 e=94	o=48 e=94
girls	o=34 e=54	o=54 e=58

$x^2 = 33.645$ significant beyond .001

Girls Who Did High Quality Art Work
(Socio-Economic Variable X Motivational Variable)

	advantaged school	disadvantaged school
fantasy	o=54 e=48	o=34 e=40
environmental	o=26 e=32	o=33 e=27

$x^2 = 4.261$ significant at .05

VIII. CELL PERCENTAGES FOR SIGNIFICANT CHI SQUARES

ART QUALITY

Enjoy X Art Quality

% by column	unaes.	aesth.	% by row	unaes.	aesth.	frequencies	
not enjoy	45	33	not enjoy	73	27	o=250	o=92
enjoy	55	67	enjoy	62	38	e=228	e=144
						o=303	o=186
CHI= 10.716 significant at .01 PHI= .117						e=325	e=164

Enjoy Media X Art Quality

% by column	unaes.	aesth.	% by row	unaes.	aesth.	frequencies	
not enjoy	43	32	not enjoy	73	28	o=237	o=90
enjoy	57	68	enjoy	63	37	e=218	e=109
						o=316	o=188
CHI= 8.085 significant at .01 PHI= .102						e=335	e=169

Enjoy Subject X Art Quality

% by column	unaes.	aesth.	% by row	unaes.	aesth	frequencies	
not enjoy	45	37	not enjoy	71	29	o=251	o=104
enjoy	57	63	enjoy	63	37	e=236	e=119
						o=302	o=174
CHI= 4.492 significant at .05 PHI= .077						e=317	e=159

Enjoy Media X Originality

% by column	unor.	orig.	% by row	unor.	orig.	frequencies	
not enjoy	44	35	not enjoy	55	45	o=180	o=147
enjoy	56	65	enjoy	45	55	e=161	e=167
						o=228	o=276
CHI= 7.246 significant at .01 PHI= .097						e=248	e=257

Enjoy Subject Matter X Craftsmanship

% by column	lo cr.	hi cr.	% by row	lo cr.	hi cr.	frequencies	
not enjoy	50	36	not enjoy	58	43	o=136	o=207
enjoy	50	64	enjoy	43	57	e=151	e=191
						o=230	o=259
CHI= 17.728 significant at .001 PHI= .148						e=215	e=273

CELL PERCENTAGES FOR SIGNIFICANT CHI SQUARE

ART QUALITY-continued

Enjoy X Craftsmanship

% by column	lo c.	hi c.	% by row	lo c.	hi c.	frequencies	
not enjoy	48	34	not enjoy	57	43	o=196	o=146
enjoy	52	66	enjoy	43	57	e=168	e=175
						o=211	o=278
CHI= 15.587 significant at .001 PHI= .141						e=240	e=250

Enjoy Media X Craftsmanship

% by column	lo c.	hi c.	% by row	lo c.	hi c.	frequencies	
not enjoy	47	32	not enjoy	58	42	o=190	o=137
enjoy	53	68	enjoy	43	57	e=160	e=167
						o=217	o=287
CHI= 17.375 significant at .001 PHI= .148						e=247	e=257

FREE OR DICTATED

Enjoy X Dictated

% by column	free	dict.	% by row	free	dict.	frequencies	
not enjoy	36	43	not enjoy	25	76	o=84	o=259
enjoy	64	57	enjoy	31	69	e=97	e=247
						o=150	o=339
CHI= 5.515 significant at .02 PHI= -.068						e=138	e=352

Enjoy Subject Matter X Dictated

% by column	free	dict.	% by row	free	dict.	frequencies	
not enjoy	35	46	not enjoy	33	77	o=81	o=275
enjoy	65	54	enjoy	32	68	e=100	e=256
						o=153	o=323
CHI= 8.425 significant at .01 PHI= -.103						e=134	e=342

CELL PERCENTAGES FOR SIGNIFICANT CHI SQUARE

HUMAN OR INANIMATE

Enjoy X Human Subject

% by column	inani.	hum.	% by row	inani.	hum.	frequencies	
not enjoy	33	48	not enjoy	60	40	o=205	o=138
enjoy	63	52	enjoy	70	30	e=225	e=118
						o=341	o=148
						e=321	e=168

CHI= 8.442 significant at .01 PHI= -.103

Enjoy Subject Matter X Human Subject

% by column	inani.	hum.	% by row	inani.	hum.	frequencies	
not enjoy	39	50	not enjoy	60	40	o=213	o=143
enjoy	61	50	enjoy	70	30	e=234	e=122
						o=333	o=143
						e=312	e=164

CHI= 8.815 significant at .01 PHI= -.105

Enjoy Media X Human Subject

% by column	inani.	hum.	% by row	inani.	hum.	frequencies	
not enjoy	37	44	not enjoy	61	39	o=201	o=127
cnjoy	63	56	enjoy	69	32	e=215	e=113
						o=345	o=127
						e=331	e=173

CHI= 4.218 significant at .05 PHI= -.074

CELL PERCENTAGES FOR SIGNIFICANT CHI SQUARES

SCHOOL-Continued

Enjoy Media X School

% by column	poor	rich	% by row	poor	rich	frequencies	
not enjoy	35	44	not enjoy	45	54	o=148	o=180
enjoy	65	56	enjoy	55	45	e=167	e=161
						o=275	o=229
CHI= 6.714 significant at .01 PHI= -.092						e=256	e=248

FREE AND EXPENSIVE MATERIALS

Enjoy X Expensive Materials

% by column	free	$	% by row	free	$	frequencies	
not enjoy	47	37	not enjoy	53	47	o=181	o=162
enjoy	54	63	enjoy	43	58	e=160	e=183
						o=208	o=281
CHI=8.075 significant at .01 PHI= .101						e=229	e=260

Enjoy Media X Expensive Materials

% by column	free	$	% by row	free	$	frequencies	
not enjoy	47	33	not enjoy	56	44	o=184	o=144
enjoy	53	68	enjoy	41	59	e=153	e=175
						o=205	o=299
CHI= 18.370 significant at .001 PHI= .151						e=236	e=268

Enjoy Subject Matter X Expensive Materials

% by column	free	$	% by row	free	$	frequencies	
not enjoy	48	39	not enjoy	52	48	o=185	o=171
enjoy	52	61	enjoy	43	57	e=166	e=190
						o=204	o=272
CHI= 6.428 significant at .02 Phi= .090						e=223	e=253

CELL PERCENTAGES FOR SIGNIFICANT CHI SQUARES

SEX

Enjoy Lesson X Sex

% by column	boys	girls	% by row	boys	girls	frequencies	
not enjoy	37	44	not enjoy	40	60	o=136	o=207
enjoy	63	56	enjoy	47	53	e=151	e=192
						o=230	o=259
CHI= 4.167 significant at .05 PHI= -.073						e=215	e=274

Enjoy Media X Sex

% by column	boys	girls	% by row	boys	girls	frequencies	
not enjoy	34	44	not enjoy	38	62	o=125	o=203
enjoy	66	56	enjoy	48	52	e=144	e=184
						o=241	o=263
CHI= 7.211 significant at .01 PHI= -.09[illegible]						e=222	e=282

SCHOOL

Enjoy X School

% by column	poor	rich	% by row	poor	rich	frequencies	
not enjoy	35	47	not enjoy	43	57	o=149	o=194
enjoy	65	53	enjoy	56	44	e=174	e=169
						o=274	o=215
CHI= 12.292 significant at .001 PHI= -.124						e=249	e=240

Enjoy Subject X School

% by column	poor	rich	% by row	poor	rich	frequencies	
not enjoy	36	50	not enjoy	43	57	o=152	o=204
enjoy	63	50	enjoy	57	43	e=181	e=175
						o=271	o=205
CHI= 15.951 significant at .001 PHI= -.141						e=242	e=234

IX. PHI COEFFICIENT MATRIX

	1 Enjoy	2 Enjoy Med.	3 Enjoy Sub.	4 Sex	5 School	6 Fantasy	7 Dictated	8 Cost ($)
Enjoy Med.	.62							
Enjoy Sub.	.56	.48						
Sex	.07	.10	.05					
School	.12	.09	.14					
Fantasy	.02	.01	.03					
Dictated	.07	.04	.10					
Cost ($)	.10	.15	.09					
Teacher	.01	.02	.09					
Real/Abst.	.04	.02	.01			.11	.19	.09
Acad. Achiev.	.02	.03	.03	.10				
3 Dimen.	.02	.02	.02			.05		
Inan/Human	.10	.07	.07			.11		
Originality	.06	.10	.10	.13	.17	.01	.05	.11
Art Quality	.12	.10	.10	.13	.09	.08	.05	.19
Craftsmanship	.14	.15	.15	.18	.05	.03	.04	.21

	9 Teacher	10 Real/Abst.	11 Acad. Achiev.	12 3Dim.	13 Hum./Inan.	14 Hanging	15 Originality	16 Art Quality
3 Dimension		.17						
Inan./Human		.07		.12				
Originality	.05	.01	.11	.12	.15	.04		
Art Quality	.14		.14	.05	.06	.03	.46	
Craftsmanship	.02	.05	.11	.08	.12	.08	.52	.46

X. CHI SQUARE MATRIX

	1 Enjoy	2 Enjoy Med.	3 Enjoy Sub.	4 Sex	5 School	6 Fantasy	7 Dictated
Enjoy Med.	318.24						
Enjoy Sub.	264.43	192.06***					
Sex	4.46*	7.60**	2.24				
School	12.79***	7.09**	16.52***				
Fantasy	.29	.15	.74				
Dictated	3.82·	1.31	8.88*·				
Cost	8.48**	18.99***	6.79*·				
Teacher	.15	.19	7.17**				
Real/Abst.	1.39	2.17	.08			9.50**	29.18***
Achievement	.18	.97	.52	8.73**			
3 Dimension	.22	.46	.32			2.15	
Human/Inanim.	8.88***	4.53*	9.26**			10.30**	
Originality	3.05·	7.86**	2.83·	13.11***	25.02***	.03	2.39
Art Quality	11.40***	8.69**	4.93*	13.38***	5.09*	5.77*	1.79
Craftsmanship	16.46***	18.31***	18.18***	27.42***	2.15	.75	1.08

	8 Cost	9 Teacher	10 Real/Abst.	11 IQ	12 3 Dim.	13 Human/Inan.
Real/Abst.	6.64**					
Achievement						
3 Dimension			25.25***			
Human/Inanim.			3.74·		12.14***	
Originality	9.16**	2.21	.05	10.38**	10.98***	18.43***
Art Quality	26.67***	15.88***	.00	15.44***	2.27	3.20·
Craftsmanship	37.81***	.19	1.96	9.10**	5.59·	11.03***

Significance Levels: * = .05, *· = .02, ** = .01, *** = .001