

AN ABSTRACT OF THE THESIS OF

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Title: AN EXPERIMENTAL STUDY OF SELF-EVALUATION IN HIGH

SCHOOL ART CLASSES

Abstract approved:

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The purpose of this investigation was to study the effect of self-evaluation on the achievement of beginning high school art students. Two groups of thirty-seven each were matched as closely as possible according to age, grade level, sex, and Differential Aptitude Test scores. The study was conducted over a period of twenty weeks. During the study, the control group (Group I) and the experimental group (Group II) received the same assignments and instructions. All evaluations for Group I were made by the teacher, while Group II students participated in self-evaluation as well as received evaluations from the teacher. Group II students completed written evaluation forms and also participated in oral critiques.

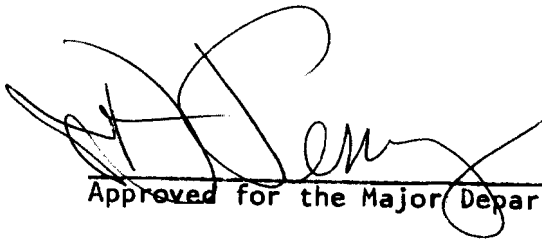
Data were collected through the use of the Lewerenz Test of Fundamental Abilities in Visual Art in a pre-test and post-test format. Data were also collected from still life drawings done at the beginning and at the end of the study, which were judged by two art experts. The analysis of the data was done with the use of the t-statistic for two independent samples. Analysis showed that Group II students made significantly more improvement in basic art skills as a result of having participated in self-evaluation.

AN EXPERIMENTAL STUDY OF SELF-EVALUATION
IN HIGH SCHOOL ART CLASSES

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the Department of Art
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D. J. M.

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Chapter 1

INTRODUCTION

"One of the most difficult problems in the field of education is that of determining how valid educational evaluation can occur."¹ This researcher has found very little conclusive evidence concerning the effectiveness of evaluative methods, although evaluation is a most important aspect of teaching. Eisner has strongly emphasized that evaluation can be an important educational tool. He has also said that "the teacher has a moral responsibility to evaluate."² Asch stated that evaluation in an art program gives students a full and realistic sense of what art is all about. There is important art learning to be gained through constructive evaluative practices. Such practices identify quality, improvement, and future directions of student art work. Constructive evaluation which is meant to further a student's art learning, must become an integral part of the whole art educational process.³

¹Elliot W. Eisner, Educating Artistic Vision (New York: MacMillan, 1972), p. 201.

²Eisner, Artistic Vision, pp. 204-08.

³Rosalie Asch, "Teaching Beliefs and Evaluation," Art Education, 29, No. 6 (October, 1976), pp. 21-22.

THEORETICAL FORMULATION

Evaluation of student work in any subject can be difficult. However, in an area such as art, which is often subjective and based on individual expression, the problem is compounded.⁴ Hubbard stated that "artistic tradition has repeatedly rejected firm criteria. Whenever rules have been made, they have soon shown themselves to be rigid and thus antithetical to the spirit of artistic creativity."⁵ He has also said that contemporary artists tend to deny that art can be analyzed objectively.⁶ Yet art teachers must analyze, make judgments, and finally assign grades to student art work. The teacher then, is faced with the conflict of satisfying the school system by assigning grades, and yet acknowledging the difficulties of making truly objective evaluations.⁷

Evaluation in art, difficult as it may be, is necessary to learning. The student must understand his strengths and weaknesses in order to grow. Hubbard said that "evaluation is, in fact, inseparable from instruction."⁸

Good evaluation is based on standards which reflect the teacher's objectives for student achievement. These standards

⁴Frank Wachowiak and David Hodge, Art in Depth (Scranton: International Textbook, 1970), p. 38.

⁵Guy Hubbard, Art in the High School (Belmont: Wadsworth, 1967), p. 167.

⁶Hubbard, p. 167.

⁷Eisner, Artistic Vision, pp. 207-08.

⁸Hubbard, p. 163.

are the criteria for evaluating student work. Establishing criteria is difficult in art, and even clearly defined objectives may not be totally satisfactory when put into practice. However, these criteria might be made more meaningful, and the subsequent evaluation more accurate, if the student is aware of the underlying objectives.

Wachowiak and Hodge stated that:

The grading of specific art products should not prove as difficult if the students are advised in advance what some of the expectations are . . . for best results, the teacher discusses with the students the possible objectives of the project.⁹

This approach not only would give purpose and direction to the student's efforts, but could involve him in self-evaluation.

Hubbard also advocated the idea that the student should be aware of the criteria used in evaluation. He has divided the functions of evaluation into five basic parts: student realization, student satisfaction, guidance, teaching methodology, and administrative judgments. He has indicated that the first two functions are the most important since they serve to inform the student and help him meet success.¹⁰ Hubbard reinforced the idea of student awareness of evaluation by stating that:

. . . the feedback a student receives is of paramount importance in all educational progress. Unless the student is aware of his own standing in his studies and the significance of what he is learning then the evaluation is of little worth. In sum, evaluation is valuable only to the degree that the student is made aware both of the criteria for judgment and of the level of his own work in relation to those criteria.¹¹

⁹Wachowiak and Hodge, p. 38.

¹⁰Hubbard, p. 185.

¹¹Hubbard, p. 166.

Asch has advocated the involvement of the student in evaluation. She has said that student and teacher together should discuss the positive and negative points of the art work, and alternative ways to solve problems in the work. In this way, criteria for evaluation can be cooperatively developed. The goal of a cooperative effort is to develop the capacity for self-evaluation which the student can apply in situations where he works on his own. Asch has also stated that "the more aware students are of criteria by which they themselves can evaluate their work, the more they can independently select and pursue directions in their work."¹²

THE PROBLEM

The researcher found several authors who expressed the idea that student awareness of evaluation causes it to be more valuable as a learning activity. It was then reasoned that actual involvement in evaluation by the student would cause an even greater degree of learning to take place. A student involved in self-evaluation would probably be more aware of the objectives of a project and the criteria of evaluation than a student not involved in such an activity. Evaluation would therefore become more meaningful and the conclusions drawn from the activity would be more readily applied to future projects. Lanier said that self-evaluation causes

¹²Asch, pp. 21-22.

the pupil to verbalize, and thereby clarify, his own conceptions of both the art process and the art product.¹³

It has been suggested that student self-evaluation could be a very important factor in art education, unfortunately very little conclusive information on the subject has been published. There was a definite need for an experimental study to determine the effects of self-evaluation on learning.

Statement of the Problem

Is there a significant difference in the achievement of beginning high school art students who participate in self-evaluation and beginning students who do not participate in self-evaluation?

Statement of the Null Hypothesis

There is no significant difference in the achievement of beginning high school art students who participate in self-evaluation and beginning students who do not participate in self-evaluation.

Assumptions of the Study

There were several basic assumptions which underlined the formulation of this study. The first was that artistic achievement can be observed. The second was that several aspects of artistic achievement can be judged. These included: aesthetic and expressive qualities of the art product, technical ability and craftsmanship, and creative imagination. The third basic assumption was that student achievement can be affected by all aspects of classroom

¹³Vincent Lanier, Teaching Secondary Art (Scranton: International Textbook Company, 1966), p. 144.

activity, including the atmosphere of the classroom, the availability of equipment and materials, the interactions of the teacher with the students, class assignments, and evaluation.¹⁴

Significance of the Study

It has always been important for the art educator to continually seek ways to make evaluative procedures more meaningful to the art student. Research in art education has been concerned with the criteria used in day to day evaluation. Appraising the art work of the student has been a major concern, and although progress has been made, no single solution has yet been found.¹⁵ If it were determined that students who participate in self-evaluation do achieve more than students who do not participate, then art teachers would have another method to promote learning and to make evaluation more meaningful.

DEFINITIONS OF TERMS

Aesthetic

The term aesthetic has been defined as the means of organizing thinking, feeling, and perceiving into an expression that communicates these thoughts and feelings to the viewer. The aesthetic criteria are based on the individual, the particular work of art, the culture in which it was made, and the intent or purpose behind the art form. Aesthetic growth is shown by the ability to

¹⁴Eisner, Artistic Vision, pp. 212-16.

¹⁵Mary E. Godfrey, "Grading and Pupil Evaluation," Art Education, (March, 1964), p. 17.

interpret and organize experiences into a cohesive whole. Aesthetic growth has often been considered as one of the basic ingredients of any art experience.¹⁶

Art Product

The student's art product was the finished project; the painting, sculpture, ceramic vase, etc.

Creativity

Creativity has been defined as the constructive, productive behavior that can be seen in action or accomplishment. It does not have to be unique, but it does have to be a contribution from the individual.¹⁷

Criteria

This term referred to standards or rules by which a judgment of something can be formed.¹⁸

Evaluation

Evaluation has been defined by Eisner as a process through which value judgments are made about educationally relevant phenomena. Evaluation has often been confused with testing and grading, but these terms have distinctly different meanings.¹⁹

¹⁶Viktor Lowenfeld and W. Lambert Brittain, Creative and Mental Growth (6th ed.; New York: MacMillan, 1975), p. 40.

¹⁷Lowenfeld, p. 61.

¹⁸Joseph Friend, ed. Webster's New World Dictionary (Cleveland: World Publishing Company, 1956), p. 349.

¹⁹Eisner, Artistic Vision, p. 201.

Formal Evaluation

This term was used to refer to the oral or written evaluations which were planned or scheduled, such as the evaluations which occurred at the conclusion of a project.

Grading

Grading was defined as the process of assigning a symbol indicating the student's level of performance relative to some criteria. The grade is a shorthand report that conveys something of the quality of the student's performance. Grading is not synonymous with evaluating.²⁰

Spontaneous Evaluation

This term referred to short, informal evaluations which occurred from day to day as students asked for assistance with their work.

Testing

This term was defined as a procedure used to obtain data for the purposes of forming descriptions or judgments about one or more human behaviors. Tests are simply mechanisms for securing information. To administer a test is not the same as to evaluate.²¹

²⁰Eisner, Artistic Vision, p. 206.

²¹Eisner, Artistic Vision, p. 204.

Chapter 2

REVIEW OF RELATED LITERATURE

Evaluation is an important educational tool. Its purpose is not only to assess the quality of the art product, but to help the student learn by assessing his strengths and weaknesses.²²

Eisner stated that evaluation does have a definite place in art education, and that not evaluating what occurs in the classroom is being educationally irresponsible.²³

Evaluation has often been equated with grading and testing, but these procedures are not the same. Evaluation is the process of making value judgments. Grading is the assignment of a symbol to a student's performance. Testing is a procedure used to obtain data or to secure a sample of a student's behavior. A student's art product, attitude, and effort can be evaluated without ever administering a test or assigning a grade.²⁴ According to Godfrey, the function of evaluation is not to grade the student or the work, but to reveal the successes gained and the needs for improvement.

²²Eisner, *Artistic Vision*, p. 204.

²³Elliot Eisner, "How Can You Measure a Rainbow? Tactics for Evaluating the Teaching of Art," Art Education, 24, No. 5 (May, 1971), p. 36.

²⁴Eisner, "Rainbow," p. 36.

This can be accomplished through constant and consistent appraisal.²⁵

Asch also supported a very similar concept. She has written:

Guidance, by its very nature, requires a teacher to analyze the work, assess its strengths and weaknesses, and select a method for leading the student toward a greater realization of other possibilities of solving problems in the work.²⁶

Student progress may be appraised in such areas as technical skills, aesthetic quality, and creative ability. Eisner said that "every visual art object requires the use of technical skills." Without technical skills, artistic expression is not realized. The aesthetic quality of the art product must be examined to determine if the work communicates that which the student intended. Creativity is a very important aspect of art education, therefore, it is important to evaluate each student's progress in this area. Ideally, art students should strive to produce imaginative, expressive, and technically competent work. Art teachers can emphasize this goal by evaluating each of these areas.²⁷

Eisner stated that there were three major contexts used for evaluating student progress. These were the comparison of the student with his own past performance, the comparison of the student's performance with those of his peers, and the comparison of the student's performance with an objective. Comparing past and present performances can be done by viewing samples of the student's work. This method can help build confidence and strengthen self-esteem. Comparing past and present performances is appropriate for appraising

²⁵Godfrey, p. 18.

²⁶Asch, p. 18.

²⁷Eisner, Artistic Vision, pp. 212-16.

many areas of student progress, such as technical skill, creative ability, and aesthetic quality.

There are definite disadvantages to using the second context of evaluation, especially if it is used predominately. Comparing a student's performance with that of the peer group emphasizes the characteristics which are shared by the group rather than the characteristics unique to each student. This type of comparison can lead to the expectation of a normal distribution curve, which in turn can lead to a self-fulfilling prophecy. If the teacher expects that predetermined percentages of the class will be excellent students, average students, and failures, then the final outcome will be approximately equivalent to the original expectations.

The third context for evaluation was comparing a student's performance to a set of objectives. The use of objectives, in appropriate areas, can be an effective means of evaluating and can facilitate learning. Appropriate areas are those in which specific skills and knowledge can be acquired and demonstrated. Such areas would include technical skills, work habits, and the use of special terminology and procedures.²⁸

Much of the evaluation that takes place in art education is done by art teachers, but Godfrey stated that self-evaluation is the "ultimate end in all of evaluation, and is perhaps not so much teacher-centered as self-motivated."²⁹ Self-evaluation in art is used to help the student become more aware of his own progress and

²⁸Eisner, "Rainbow," p. 38.

²⁹Godfrey, p. 19.

to help him form value judgments.³⁰ Conant and Randall have also stated that student self-evaluation is the most effective method of evaluating growth, since it is based on the individual's understanding of his own work. Improved and intensified self-study should be the aim of all evaluation.³¹

deFrancesco has written that self-evaluation is a part of the process of growing and learning. A student needs to assess his accomplishments, weaknesses, and appraise the degree of aesthetic and expressive qualities. deFrancesco has also stated that "during self-evaluation, the pupil identifies himself anew with his creation. In so doing he relives his success, struggle, and pleasure or displeasure." It is this self-reflective process which should lead to greater confidence in the student's own judgments and reactions.³²

According to Harwood the evaluation of student growth through art experiences has been, and is presently, carried out through the many subjective efforts of the art instructor. Such subjective evaluation is necessary since the aesthetic value of the art product is dependent upon the subjective reactions of its viewers. However, the student must evaluate his own work; otherwise he is either

³⁰Godfrey, p. 19.

³¹Howard Conant and Arne Randall, Art in Education (Peoria: C. A. Bennett, 1959), pp. 195-98.

³²Italo de Francesco, Art Education, Its Means and Ends (New York: Harper, 1958), p. 224.

dissatisfied or pleased with his work without knowing the reasons for his particular reaction.³³ Harwood also stated that:

It cannot be stressed too heavily that self-evaluation is an important milestone on the road to maturity, and all attempts to evaluate a pupil's work should follow the unspoken question: Will this evaluation . . . enable the pupil to strengthen his ability to evaluate his own work, and by so doing, enable him to promote his own creative growth with deliberate effort?

The most important element to be evaluated is not the work of art, but the growth which the student experienced during the process of producing a piece of creative work.³⁴ However, all the art teacher has to observe is the student's overt behavior and the art product. The teacher can only surmise the degree of growth that the student has experienced.³⁵ Often a teacher's assessment of a particular art product does not match the student's own perception. Student self-evaluation can help a teacher recognize such an individual in order to help him build self-esteem and confidence in his own judgment.³⁶

Godfrey cited studies by Burkhart, Nitschke, Edmonston, and Schwartz which supported the use of self-evaluation in the classroom. A study by Burkhart indicated that through self-reflective learning a student moves more rapidly from one stage of development to another in his quality of art product. Further studies by Burkhart and

³³Alan Harwood, "Evaluation: the Key to Excellence," Art Education, 22, No. 1 (January, 1969), p. 14.

³⁴Conant, p. 193.

³⁵Elliot Eisner and David Ecker, Readings in Art Education (Walltham, Massachusetts: Blaisdell, 1966), p. 387.

³⁶Eisner, Artistic Visions, p. 233.

others concluded that students exposed to methods designed to increase self-reflectiveness showed significant gains in creativity and creative personality.³⁷

Lewis has recommended that in classroom practice, evaluation must not threaten the student's self-esteem; and that external judgments must eventually give way to self-evaluation.³⁸ Godfrey also stated that teacher evaluation is necessarily the dominant practice early in an art program, but that practice in self-reflective processes as a student matures not only increases the student's evaluative ability, but improves the quality of the art product as well.³⁹

Guided self-evaluation at the senior high school level is often effective, according to Keiler. It can help to raise the student's standards for attitude and achievement. Keiler suggested using questionnaires as a self-evaluation device since they require a minimum of time and do not require a great deal of writing skill.⁴⁰

There are several ways to help the student make effective evaluations of his own work and the work of others. Ecker has listed these guidelines:

³⁷Godfrey, p. 20.

³⁸Hilda Lewis, "What Research Says to the Teacher About Developing Creativity," Art Education, 24, No. 5, (May, 1971), p. 34.

³⁹Godfrey, p. 19.

⁴⁰Manfred Keiler, The Art in Teaching Art (Lincoln: University of Nebraska Press, 1961), p. 95.

1. Instruct the students to report freely their feelings and immediate responses to a given work.
2. Point out that people respond differently to the same stimulus, depending on their different experiences.
3. Distinguish between emotional reactions and value judgments which are supported by evidence.
4. Broaden their experiences with contemporary and historical works and develop their ability to justify their own judgments.

Effective use of these guidelines should provide the student with the necessary background for a realistic evaluation of the art product.⁴¹

Eisner said that the importance of any art experience lies in the effect it has on the individual, not in the kind of art work produced.⁴² In view of Eisner's statement, the researcher felt that evaluation must be aimed at making art experiences more meaningful to the student. Experiences in self-evaluation can help the student to assess his abilities, to gain self-esteem, and to rely on his own judgments.

⁴¹Eisner, Readings, p. 388.

⁴²Eisner, Readings, p. 395.

Chapter 3

PROCEDURE

This experiment was designed to study the effects of self-evaluation on student achievement in art. Participants in the experiment were high school students enrolled in Art I classes at Central High School, Salina, Kansas. The seventy-four students involved in the study were divided into two groups. The control group, known in the research as Group I, included thirty-seven students in first, fifth, and sixth period classes. The experimental group, Group II, included thirty-seven students in second and third period classes. All the students who participated in the study were between fourteen and sixteen years old. Group I included thirty freshmen and seven sophomores, while Group II had thirty-two freshmen and five sophomores. There were twenty girls and seventeen boys in Group I. Group II contained seventeen girls and twenty boys.

The students' Differential Aptitude Test composite scores were used to match the two groups as closely as possible. The percentile rank values were divided into three general categories: below average, 1-39; average, 40-60; and above average, 61-99. The distribution of the students' DAT scores within each group was as follows:

<u>Number of Students</u>	<u>Percentile Ranking</u>		
	<u>Below Average 1-39</u>	<u>Average 40-60</u>	<u>Above Average 61-99</u>
Group I	14	14	9
Group II	12	16	9

The study was conducted over a period of twenty weeks. Prior to the beginning of the experiment, the Lewerenz Test of Fundamental Abilities of Visual Art was given as a pre-test. The Lewerenz test was given again at the conclusion of the study as a post-test. This test was designed to measure those art skills which are developed in the public schools. There are three parts to the test which include sections in recognition of proportion, observation of light and shade, analysis of perspective, and originality of line drawing.⁴³ According to the Mental Measurements Yearbook, the Lewerenz test is technically well constructed and has a high coefficient of reliability.⁴⁴

Just prior to the beginning of the study, the students had completed a still life drawing. A similar drawing was also assigned at the conclusion of the study. These drawings were judged by two art experts to determine how much, if any, improvement had been made by each student.

For the duration of the experiment both groups were given the same assignments, and received the same instructions and

⁴³Alfred S. Lewerenz, Test of Fundamental Abilities of Visual Art (Los Angeles: California Test Bureau, 1927), p. 1.

⁴⁴Oscar Buros, Mental Measurements Yearbook (Highland Park: Gryphon Press, 1941), p. 148.

demonstrations. The difference between the two groups was in the method of evaluating student work. In Group I formal evaluations were made by the teacher. In Group II the students participated in methods of self-evaluation, and received evaluations from the teacher as well. The project assignments during the study included: ink drawing, exercises in perspective drawing, exercises in color and design theory, acrylic painting, ceramics (handbuilt pottery and ceramic sculpture), and still life drawing.

Written evaluations were made at the conclusion of each project; and for those projects which were particularly long and involved, such as painting and ceramics, in-progress evaluations were also made. Evaluation forms for each project were made for both groups. The forms contained questions pertaining to the specific characteristics of each project. The questions covered such areas as composition, color, use of materials, craftsmanship, and originality of idea. The forms were essentially the same for both groups. Examples of the forms can be found in Appendix C, page 40. At the conclusion of each project the students in Group I received the evaluation forms which had been completed by the teacher. The students in Group II received the forms, answered the questions themselves, and returned the forms to the teacher. The teacher read the students' self-evaluations, wrote additional comments, and returned the evaluations to the students. Both groups were instructed to keep the forms in their art notebooks for review later in the year.

In addition to the formal written evaluations, spontaneous verbal evaluations occurred daily in both groups. These were the

result of students' questions or requests for help. The spontaneous evaluations were conducted differently in the two groups. In Group I the teacher would simply answer the students' questions without deliberately encouraging self-evaluation. However, in Group II the teacher did encourage self-evaluation by answering questions with questions. This was an attempt to cause the students' to think for themselves, evaluate their own work, and answer their own questions.

Class critiques were also employed at the conclusion of each project. Critiques in Group I classes were conducted primarily by the teacher. Student projects were displayed and the teacher commented on the strengths and weaknesses of the work. Although the students were not specifically encouraged to participate, they were able to make comments if they so desired.

In Group II, the students were the primary participants in the class critiques. They were encouraged to comment on their own work as well as to discuss the work of others. After the students had discussed each project the teacher made additional comments and suggestions.

At the conclusion of the twenty week study, the final still life drawings and the first still life drawings were rated by two judges, who were art teachers in Salina secondary schools. Both sets of drawings from both groups were put in random order and given code numbers. The drawings were rated from one to five (five being the highest rating). The judges were asked to rate three aspects of the drawings (composition, value, and texture) with regard to both technical skill and aesthetic quality. The areas

which were evaluated had been thoroughly discussed in both groups during the still life assignment. The students had been encouraged to be creative in their approaches to solving the problems of balance, negative and positive space, shading, variety of values, and the representation of textures.

The Lewerenz Test of Fundamental Abilities in Visual Art, which had been used as a pre-test, was also used as a post-test given at the conclusion of the study. The test scores and the judges' ratings were both used to compare the achievement level of Group I with the achievement level of Group II. The comparisons of the data were analyzed with the use of the t-statistic, which is a two-tailed test for two independent samples. The acceptance or rejection of the null hypothesis was dependent on the results of the analysis, which have been reported in Chapter 4.

Chapter 4

ANALYSIS OF DATA

Once the experiment was completed and the data collected, it was necessary to analyze the findings for the purpose of accepting or rejecting the following null hypothesis: There is no significant difference in the achievement of beginning high school art students who participate in self-evaluation and students who do not participate in self-evaluation. The data included the raw scores from the Lewerenz Test of Fundamental Abilities in Visual Art and the raw scores from the still life drawings. These raw scores have been included in Appendix A, page 35.

The t -statistic was used as the testing instrument to determine if the differences in Group I and Group II scores were significant. The alpha level of .05 was chosen to determine the significance of the results.⁴⁵ The critical value of t for each test was determined by the degrees of freedom within each sample. Therefore, the level of significance changed in relation to changes in the sample size.⁴⁶ The data were tested through the use of the Monroe Calculator which was programmed to calculate the t -statistic

⁴⁵John Peatman, Introduction to Applied Statistics (New York: Harper and Row, 1963), pp. 281-82.

⁴⁶Peatman, p. 210.

with respect to the difference between two independent sample means.

The equations involved were as follows:

$$\bar{X} = \sum \frac{x_i}{N_x}$$

$$\bar{Y} = \sum \frac{y_i}{N_y}$$

$$S_x = \sqrt{\frac{\sum (X_i - \bar{X})^2}{N_x - 1}}$$

$$S_y = \sqrt{\frac{\sum (Y_i - \bar{Y})^2}{N_y - 1}}$$

$$t = \frac{|\bar{X} - \bar{Y}|}{\sqrt{\left(\frac{1}{N_x} + \frac{1}{N_y}\right) \left(\frac{\sum (X_i - \bar{X})^2}{N_x} + \frac{\sum (Y_i - \bar{Y})^2}{N_y} - 2\right)}}$$

$$df = N_x + N_y - 2$$

Where:

\bar{X} = Mean of X values

\bar{Y} = Mean of Y values

S_x = Standard deviation of the X values

S_y = Standard deviation of the Y values

N_x = Number of X values

N_y = Number of Y values

t = t-statistic

df = Number of degrees of freedom⁴⁷

The first tests were the comparisons of the pre- and post-test scores and pre- and post-drawing scores of all thirty-seven students

⁴⁷Monroe Calculator Manual for Model 1785, 1970, Litton Industries, p. 1.

of Group I and all thirty-seven students of Group II. The results of these tests were reported in Tables 1 and 2 below. In both groups the degree of freedom was 72 ($37 + 37 - 2$). The .05 alpha level of significance for 72 df was 2.00. The t -values which were equal to or greater than 2.00 would be significant.

Table 1

Lewerenz Test of Fundamental Abilities in Visual Art

	<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Group I	48.02	49.72	0.65	not significant
Group II	46.38	54.11	2.77	significant*

*also significant at .01 level

Table 2

Still Life Drawings

	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
<u>Group I</u>				
Judge 1	5.51	6.84	2.25	significant
Judge 2	8.62	9.70	1.41	not significant
<u>Group II</u>				
Judge 1	4.97	6.78	3.09	significant*
Judge 2	6.86	9.27	3.49	significant*

*also significant at .01 level

The results reported in Table 1 indicated that Group I did not make significant gains between the pre- and post-tests, while Group II did make significant gains at both the .05 and .01 alpha levels. Table 2 indicated that while Group I did make a significant

gain in one test, Group II gains were significant in both tests at the .05 and .01 alpha levels. According to the results reported in Tables 1 and 2, the students who participated in self-evaluation did achieve more in the basic art skills than the students who did not participate in self-evaluation. Further comparisons were made for the purpose of obtaining as much information as possible from the data. The data were compared according to the DAT ranking categories, sex, and class.

Since the students' Differential Aptitude Test scores had been used to match the two groups, comparisons were made to determine which category of students (above average, average, below average) had made significant achievement. The results which were obtained by comparing pre- and post-test scores and pre- and post-drawing scores for each category of students, within both groups, were included in the following tables.

Table 3

Students With Above Average DAT Percentile Rankings

<u>Lewerenz Test</u>	<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Group I	56.11	57.11	0.22	not significant
Group II	50.33	56.11	0.75	not significant
<u>Drawings</u>	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
<u>Group I</u>				
Judge 1	6.22	8.44	1.58	not significant
Judge 2	10.00	12.33	2.69	significant
<u>Group II</u>				
Judge 1	5.67	7.67	1.60	not significant
Judge 2	8.22	10.11	1.27	not significant

Table 4

Students With Average DAT Percentile Rankings

<u>Lewerenz Test</u>	<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Group I	49.23	50.84	0.46	not significant
Group II	48.25	58.00	2.92	significant*
<u>Drawings</u>	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
<u>Group I</u>				
Judge 1	6.31	7.54	1.45	not significant
Judge 2	9.31	10.31	0.89	not significant
<u>Group II</u>				
Judge 1	4.76	6.47	2.17	significant
Judge 2	6.53	9.19	3.01	significant*

*also significant at .01 level

Table 5

Students With Below Average DAT Percentile Rankings

<u>Lewerenz Test</u>	<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Group I	42.13	44.33	0.53	not significant
Group II	39.92	45.00	1.05	not significant
<u>Drawings</u>	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
<u>Group I</u>				
Judge 1	4.50	5.26	1.08	not significant
Judge 2	7.20	7.60	0.31	not significant
<u>Group II</u>				
Judge 1	4.72	6.54	1.49	not significant
Judge 2	6.45	8.81	1.63	not significant

As the results reported in Tables 3, 4, and 5 have shown, the only student category which achieved significant gain was the average category of Group II. The average students of Group II made significant gains in the Lewerenz test as well as the still life drawings. The only other student category which made any significant gain was the above average category within Group I. This category showed a significant gain only in the rating of Judge 2.

Comparisons of the achievements of both sexes, within each group, were also made. The results were recorded in Tables 6 and 7.

Table 6

Comparison of the Girls' Scores

<u>Lewerenz Test</u>	<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Group I	45.15	47.50	0.62	not significant
Group II	42.62	51.53	2.17	significant
<u>Drawings</u>	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
<u>Group I</u>				
Judge 1	5.80	7.30	1.76	not significant
Judge 2	8.30	9.55	1.09	not significant
<u>Group II</u>				
Judge 1	4.82	6.82	2.34	significant
Judge 2	7.00	9.52	2.57	significant

Table 7
Comparison of the Boys' Scores

<u>Lewerenz Test</u>	<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Group I	51.41	52.35	0.28	not significant
Group II	48.66	56.30	2.05	significant
<u>Drawings</u>	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
<u>Group I</u>				
Judge 1	5.17	6.29	1.39	not significant
Judge 2	9.00	9.88	0.87	not significant
<u>Group II</u>				
Judge 1	5.10	6.75	2.00	not significant
Judge 2	6.85	9.05	2.27	significant

As reported in the previous tables, the girls made slightly higher gains than the boys. The t -values of the girls' scores were slightly higher than those of the boys. However, the means of the boys' scores were slightly higher than the means of the girls' scores. Neither Group I girls nor Group I boys made any significant gains. However, both boys and girls in Group II made significant achievements.

The results of the analysis have shown that for Group I, only two of the eighteen comparisons made indicated a significant gain in achievement. However, twelve of the eighteen comparisons made for Group II showed a significant gain in achievement. Also, five of the comparisons for Group II showed a significance at the .01 alpha level. On the basis of these results, the null hypothesis was rejected. The accepted alternative hypothesis was: There is

a significant difference in the achievement of beginning high school art students who participate in self-evaluation and students who do not participate in self-evaluation.

Chapter 5

CONCLUSIONS, RECOMMENDATIONS, SUMMARY

CONCLUSIONS

The following conclusions were based on the results of the statistical analysis of the data obtained during the study:

1. The null hypothesis was rejected by the overall results of the analysis. Therefore, it was concluded that students involved in self-evaluation did achieve more in the basic art skills than students not involved in self-evaluation.

2. Students of average ability (based on DAT scores) who were in the experimental group achieved more than average students who were in the control group. However, students of above average and below average abilities who were in the experimental group did not make substantial gains over their counterparts who were in the control group.

3. Both the boys and the girls involved in self-evaluation achieved much more than both the boys and the girls who were not involved in self-evaluation.

Additional conclusions and opinions, made by the researcher, were based on daily observation of the students. Prior to the beginning of the study, the researcher observed that many of the students had negative attitudes toward evaluation. They appeared to be unaccustomed to the comparison of their work with criteria,

with the work of others, or with their own previous work. It was also noted that many students expected to be rewarded with good grades simply for producing quantities of work, almost regardless of the quality. Asch has written that the state of evaluation in art education has become very permissive in recent years. "Standards of quality have too often given way to standards of quantity, making it seem acceptable to reward students who merely turn in all the work."⁴⁸

During the course of the study, which emphasized standards of quality in evaluation, the negative attitudes of many students eventually gave way to positive concepts within both groups. However, a much more dramatic change was noted in Group II, especially with regard to class critiques. With each subsequent critique, students in Group II showed increasing willingness to participate, to make meaningful and constructive criticism, and to offer alternative solutions to problems. It was also noted that many Group II students made increasingly more meaningful and thorough written evaluations. Group II students were, at first, somewhat apprehensive about completing the written evaluations, but eventually began to see it as a worthwhile activity.

Toward the end of the study, the students in Group II seemed to rely more on their own judgments than did the students in Group I. Group II students began to use some unusual and imaginative approaches to their work, while most Group I students continued to seek conformity and approval from others. For instance, the students in

⁴⁸Asch, p. 19.

Group II produced a wide variety of expressive ceramic sculptures ranging from realistic figure modeling to non-objective slab constructions. Group I students showed much less individuality in their sculptures. It was also noted that Group II students eventually began to work more independently than students in Group I. At the beginning of the school term, students in both groups needed very explicit directions, almost constant help from the teacher, and close supervision to insure that class time was used properly. Although students in both groups made improvement in these areas, Group II students displayed more self-motivation and independent work habits than Group I students. Asch has written that students who were able to evaluate their own progress, independently selected and pursued directions in their work.⁴⁹

FACTORS THAT SEEMED TO AFFECT THE STUDY

It was possible for a number of variables to have affected the results of this study. The following factors may have been included:

1. Both Group I and Group II were, by necessity, made up of separate classes. Group I included hours one, five, and six. Group II included hours two and three. Students in sixth hour were often less alert and more restless than students who had class earlier in the day. This may have affected the results of Group I. Each class had a distinctly different atmosphere which was determined by the combination of student personalities,

⁴⁹Asch, p. 22.

interactions, and problems. The atmosphere of each class may have affected the achievement level of individual students.

2. There was a wide variation in the maturity of the students who participated. As an uncontrolled variable, the difference in levels of maturity may have been a factor which affected the results of the study.

3. The study was concluded toward the end of the school term. The last few weeks of school often have a detrimental effect on the students' concentration, the students' levels of interest, and classroom atmosphere.

RECOMMENDATIONS FOR FURTHER STUDY

Although this study has produced some interesting and useful findings, more research on methods of evaluation, specifically self-evaluation, is needed. Suggested directions for further research are listed below:

1. A study of the effect of self-evaluation on the achievement of advanced high school art students would be a logical direction. Asch has implied that as the student advances, the need for developing self-evaluation skills increases.⁵⁰

2. It would be beneficial to determine if there is a relationship between self-evaluation and creativity. The Lewerenz Test used in this study was not designed to specifically measure creativity, therefore no direct relationship has been established between creativity and self-evaluation.

⁵⁰Asch, p. 21.

3. Studying the effect of involving students in developing achievement goals as well as in self-evaluation could yield very useful findings. Students who cooperate with the teacher in developing goals and evaluation criteria may be more motivated toward achievement than students who do not work with the teacher in these areas.

SUMMARY

The purpose of this investigation was to study the effect of self-evaluation on the achievement of beginning high school art students. Participants in the study were seventy-four beginning art students from Central High School, Salina, Kansas. Two groups of thirty-seven each were matched as closely as possible according to age, grade level, sex, and Differential Aptitude Test scores. The control group (Group I) and the experimental group (Group II) received the same assignments and instructions during the twenty week study. All evaluations for Group I were made by the teacher, while Group II students participated in self-evaluation as well as received evaluations from the teacher. Group II students completed written evaluation forms and participated in class critiques.

Data were collected through the use of the Lewerenz Test of Fundamental Abilities in Visual Art in a pre-test and post-test format. Data were also collected from still life drawings done at the beginning and the end of the study, which were judged by two art experts. Statistical analysis of the data showed that Group II students made significantly more improvement in the basic art skills than Group I students. Therefore the null hypothesis was rejected.

APPENDIX

APPENDIX A

RAW SCORES

Group 1

<u>Student</u>	<u>Lewerenz Test</u>		<u>Still Life Drawings</u>			
	<u>Pre-test</u>	<u>Post-test</u>	<u>Judge 1</u>		<u>Judge 2</u>	
			<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
1	30	18	3	3	4	5
2	43	37	5	5	11	11
3	54	57	6	6	8	9
4	28	36	6	5	9	11
5	51	58	6	13	11	13
6	49	56	7	9	9	13
7	63	56	9	10	10	11
8	56	40	8	11	10	15
9	22	23	3	3	3	4
10	53	66	8	6	12	12
11	41	37	3	7	6	9
12	45	54	5	4	7	5
13	56	62	4	5	7	9
14	55	37	7	9	11	12
15	44	45	3	4	4	4
16	47	49	5	7	5	6
17	63	76	8	14	12	15
18	50	46	6	7	8	12
19	61	63	9	11	13	14
20	55	60	4	4	5	4
21	50	60	5	7	9	8
22	40	51	7	10	12	13
23	58	57	4	5	6	9
24	43	51	5	11	13	15
25	51	58	5	5	10	11
26	51	44	5	4	11	9
27	72	72	8	10	10	14
28	58	53	3	4	9	12
29	46	49	6	5	10	8
30	44	49	6	10	10	14
31	50	45	9	8	10	7
32	34	39	6	7	7	10
33	56	52	4	3	9	7
34	36	38	3	3	3	3
35	39	50	7	8	12	13
36	43	49	3	7	9	9
37	40	44	3	3	4	3

RAW SCORES

Group 11

<u>Student</u>	<u>Lewerenz Test</u>		<u>Still Life Drawings</u>			
	<u>Pre-test</u>	<u>Post-test</u>	<u>Judge 1</u>		<u>Judge 2</u>	
			<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
1	40	52	3	7	7	11
2	53	67	7	13	10	12
3	44	51	5	9	8	11
4	43	60	8	13	9	11
5	52	56	4	6	7	11
6	35	56	3	4	5	7
7	17	16	3	3	3	4
8	69	78	5	6	6	8
9	29	46	3	6	3	9
10	31	34	3	7	4	9
11	42	46	7	12	7	10
12	46	58	4	5	5	9
13	25	25	3	3	3	3
14	48	64	9	11	10	13
15	49	55	6	10	10	13
16	64	65	7	8	7	10
17	74	77	3	4	4	7
18	50	57	4	4	9	10
19	40	60	4	4	5	8
20	38	50	3	6	6	9
21	58	62	6	7	9	8
22	59	59	7	7	13	10
23	40	58	3	4	4	7
24	41	50	4	4	5	9
25	67	74	4	4	4	6
26	43	56	7	10	6	14
27	52	59	5	7	8	8
28	45	54	4	3	6	3
29	39	42	5	11	6	11
30	42	41	4	3	3	3
31	46	56	6	8	10	12
32	50	47	8	9	12	11
33	47	61	4	7	9	11
34	55	58	9	12	12	15
35	46	50	5	4	9	9
36	55	52	6	6	9	10
37	42	50	3	4	3	7

APPENDIX B

DATA ANALYSIS BY CLASS

CONTROL GROUP

Hour 1

Lewerenz Test of Fundamental Abilities in Visual Art

<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
44.58	44.83	1.05	not significant

Still Life Drawings

	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Judge 1	6.00	7.18	1.05	not significant
Judge 2	8.72	10.27	1.20	not significant

Hour 5

Lewerenz Test of Fundamental Abilities in Visual Art

<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
51.83	54.75	0.79	not significant

Still Life Drawings

	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Judge 1	5.58	7.83	2.12	significant
Judge 2	8.75	10.08	0.88	not significant

Hour 6

Lewerenz Test of Fundamental Abilities in Visual Art

<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
47.69	49.61	0.51	not significant

Still Life Drawings

	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Judge 1	5.23	5.92	0.76	not significant
Judge 2	8.77	9.23	0.37	not significant

EXPERIMENTAL GROUP

Hour 2

Lewerenz Test of Fundamental Abilities in Visual Art

<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
44.79	53.84	1.85	not significant

Still Life Drawings

	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Judge 1	4.79	7.10	2.60	significant
Judge 2	6.42	9.47	3.45	significant*

*also significant at .01 level

Hour 3

Lewerenz Test of Fundamental Abilities in Visual Art

<u>Pre-test Mean</u>	<u>Post-test Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
48.05	54.38	2.39	significant

Still Life Drawings

	<u>Pre-drawing Mean</u>	<u>Post-drawing Mean</u>	<u>t-value</u>	<u>Significance at .05 level</u>
Judge 1	5.16	6.44	1.66	not significant
Judge 2	7.44	9.05	1.52	not significant

APPENDIX C

SAMPLE EVALUATION FORMS

Student Evaluation -- Ink Drawing (Landscape)

Please give brief explanations.

Is your composition unified?

Is your composition interesting?

Did you make good use of negative and positive space?

Does your drawing have definite fore-, middle-, and background?

Did you make the appropriate changes in size, detail, and contrast?

Did you make good use of texture, shading, and shadows?

Is the drawing your own idea?

General Comments:

TEACHER EVALUATION FORM

Evaluation -- Ink Drawing (Landscape)

Composition

Negative and Positive Space

Use of fore-, middle-, and background

Texture

Shading and Shadows

Originality

Comments

STUDENT EVALUATION FORM

Painting, in Progress

Think about and answer briefly the following questions.

Composition:

Have you used the space well?

Is there direction or rhythm?

Is there repetition and variety?

Color:

What are the dominant colors?

Do they create the effect you want?

Have you used good craftsmanship?

Is the painting based on your own idea?

Now, what can you do to improve the painting?

TEACHER EVALUATION FORM

Painting, in progress

Composition:

Use of space

Direction and rhythm

Repetition and variety

Color:

Craftsmanship:

Originality

Improvements

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VITA

Donna Jackson McAfee was born in Plainville, Kansas, in 1952, and moved with her family in 1962 to Wichita, Kansas. She majored in art education at Kansas State Teachers College where she graduated with honors. She later received a graduate assistantship in art education from Emporia Kansas State College. Her studio emphasis has been in metalsmithing. Mrs. McAfee has taught high school art in Augusta and Salina, Kansas. In 1978 she taught a workshop, "Batik Variations," for the Neosho River Free School in Emporia, Kansas.

Education

Emporia Kansas State College, 1975-76
MA, 1978 (Emporia State University)
Kansas State Teachers College, 1972-74
BSE, 1974
Kansas State University, 1970-72

Teaching Experience

South High School, Salina, Kansas, 1978-
Central High School, Salina, Kansas, 1976-78
Emporia Kansas State College, Graduate Assistant, 1975-76
Augusta High School, Augusta, Kansas, 1974-75

Exhibitions

Area Art Instructors' Exhibition, 1978
Marymount College, Salina, Kansas
Kansas Artist Craftsman Exhibition, 1978
Washburn University, Topeka, Kansas
Student Exhibition, 1973, 1974, and 1976
Emporia Kansas State College (KSTC)
Student Exhibition, 1972
Kansas State University