

ART EDUCATION AND THE
EDUCABLE MENTAL RETARDATE
IN THE HIGH SCHOOL

by

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ABSTRACT

This experimental study investigated the possibility of measuring pupil progress in art activities undertaken by a regular class and a class of Educable Mentally Retarded students to determine the extent to which E.M.R.s might assimilate concepts and complete activities from an art programme designed for regular classes. The underlying assumption explored was that it may be that E.M.R. students do not achieve results comparable with students in regular art classes simply because they do not have comparable programme content and quality of instruction.

Two classes, one regular art Grade 10/11 combination class and an E.M.R. class were assigned treatment identical in nature and scope. The classes were a part of the regular grouping within a senior secondary school in British Columbia.

The treatment consisted of engaging in fifteen assignments delivered by the investigator over a period of six consecutive months. The first two and the last two assignments served as a pre-test and post-test respectively. All interim assignments and pre and post-tests provided materials for analysis and comparison. Pre and post-test results provided within-group gains; interim assignments provided material for informal between-group comparisons. Evaluation of all assignments was performed by three art educators employing an objective scoring procedure previously familiar to each.

The evaluative instrument purported to assess the results of each assignment on seven clearly stated criteria which normally form part of the foci of instruction in art.

Analysis of the data revealed that both the regular class and the E.M.R. class gained significantly according to pre-test to post-test results. Significance levels reached by the regular class on all seven categories were .001. Significance levels reached by the E.M.R. class were .001 on five categories. On the two remaining categories the significance levels were .01 and .004.

On programme results (interim assignments) performance by E.M.R.s was comparable to that of the regular class on better than 60% of programme content. Findings indicated that there were significant differences at the .05 level between groups on 28 out of 77 categories. However, on the remaining 49 categories there was no significant difference at the .05 level.

The findings suggest that E.M.R. students can perform at a level comparable to that achieved by the regular class on most assigned art tasks. Special limited art programmes do not offer the only alternative for the education of the E.M.R. within the confines of the public school and other possibilities are worth exploring.

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CHAPTER I

DISCUSSION OF THE PROBLEM

Introduction and background

When a child is professionally judged to be atypical it should not necessarily follow that things the child needs to learn are uniquely and totally different from what all children have to learn.

(Ministry of Education, B.C., 1977)

Within the public school system there exists a group of students commonly referred to as the "Special Class". These students, usually low achievers, have continuously demonstrated their inability to cope with the regular classroom environment in our public schools. This marks them as different and it is this difference from the norm that has caused them to be placed in the "special" category. The system's answer to this problem of providing adequate education for such youth in the Province of British Columbia was the implementation of a branch of education known as "Special Education" (Department of Education, British Columbia. 1956). All regular subjects of the public school system are permitted within the framework of this branch. Among them is art (Emlen, 1970).

The needs of the atypical in our public school system have caused much activity in recent years. This activity has been both "political" and "curricular" in nature. For example associations for the mentally handicapped, comprised of people

who for the most part are not educators, have become politically visible at school board and other public meetings for the purpose of having input on curriculum decision making where the mentally handicapped are concerned.

The students that you have here now and those coming next year will be experiencing adult life in just a few years. The school year should be a preparation for entering adult life and accepting responsibilities.

(Derkach, 1983, p.1)

Under the general heading of Administrative Support for the mentally handicapped in the high school the suggestion is made that:

A person at the administrative level to focus on the needs of the students who are handicapped and to advocate for these students should be a person who really understands and believes in integration and normalization.

(Derkach, 1983, p.1)

At the same time, schools charged with the education of the handicapped have received directives to "develop activities that are non-threatening and which contribute to the development of a positive self-concept" (B.C. Ministry of Ed., 1984)

With the formation of the branch of Special Education in Public Education as an answer to meet the needs of the atypical, educators scrambled to design special programmes and put them into use. Art as an area of study was quickly assimilated into the "Special Curriculum", for the therapeutic value of art activity for special groups has long been recognized (Naumberg, 1966; Ensher, 1969; Uhlin, 1973). A rush to implement new curriculum

materials and programmes resulted, with much of the curriculum relying on "hands-on" projects. Activity was the key, perceptual growth as related to art education was for the most part ignored or at best overlooked, despite evidence from some sources that perceptual growth in any student can not be ignored when dealing with the education of that student.

Learning the mechanics of how we see, which is generally called "perception", has an influence on what we understand when we look.
(Lanier, 1982, p.76)

The mentally retarded student is, before all, a student requiring education. Upon completion of schooling the mental retardate is expected to fulfill a role as a useful and productive member of the community and society as a whole (Derkach, 1983). This is evidenced through the guiding philosophy of most associations for the mentally handicapped. Integration and normalization are the hallmarks (Hunter, 1981). In this respect the things the mental retardate needs to learn should not be different from what all students should learn.

Lip-service has been given to the fact that special students should learn the same things normal students should learn. However, in practice this tends not to be the case. "Special" implies different from the norm, therefore the approach to curriculum planning and implementation has been different from the norm. Words like non-competitive and non-threatening rarely appear in conventional curriculum guides. However, when dealing

with curriculum planning for the handicapped, non-competitive and non-threatening art activities are to be the key for handicapped student participation in the art room (B.C. Ministry of Ed., 1984). Within the context of this study, E.M.R. are defined as students who as adults would be functioning mentally at the levels of upper elementary-aged children (James, 1983).

Art Education and the E.M.R.

A common stated aim for art in the public schools when dealing with the atypical student is:

To foster good mental health through creative activities which may lessen fears, pressures, and tensions and promote success, assurance, confidence and a better self-concept.
(B. C. Dept. Ed., 1965,p.78)

Although statements like these include reference to intellectual growth, when translated into programmes in art they tend to favour therapeutic ends.

Art education for the slow learner, as for the normal child, is primarily to assist in intellectual, emotional and social growth through self-expression and the development of permanent interests.
(B.C. Dept. Ed., 1965,p.77)

The product of art activity would seem to be eminently suited to objective assessment for developmental deficits as well as the discovery of emotional difficulties (Rubin, 1981).

Art activity as therapy is well rooted in educational ideology (Ensher, 1969; Sperno & Weiner, 1973; Naumberg, 1966 Uhlin, 1973). Its very nature assures some measure of success for all who attempt such activity. However, what goals such activity are to achieve in a public school situation are less than clear.

If the primary goal of education is the development of the individual's full potential (Victoria, 1977) art therapy falls far short of this goal, since it merely conditions the learner toward a state of readiness for learning.

Levic (1967) suggests that the art instructor seeks to impart the basic principles of design, whereas the therapist should be equipped with knowledge of the technique of free association method and the ability to read disguised expression of the unconscious. The art teacher's effectiveness is questionable when involuntarily placed in the position of art therapist.

Art teachers in the public school system are for the most part unfamiliar with the idiosyncratic needs of individual retarded students. Furthermore, their education and training as teachers does not prepare them to take on the role of art therapist. Yet, due to the nature of the art room and connected art activity within, art teachers have been charged with providing educational activity to the Special Class (Kilian, 1983). As a result, in an effort to assure student's success in art, art teachers have provided below-grade-level activities using easily handled media, as well as restricting the use of some tools (Miller & Miller, 1981). Such restrictions on the E.M.R. may very well influence future performance and self expectations by the students concerned.

such modifications are not necessary
...mentally retarded students respond to the same
teaching techniques and use the same art tools and
materials as normal students.

(Miller & Miller, 1981, p.22)

Rationale for the use of art activity in E.M.R. programme

Although discussion up to this point has focused on the therapeutic aspects of art, since these might seem to be particularly relevant to E.M.R. students, art education for them, as for other groups, encompasses a wider range of behaviours and principles. One of the major aims of any art programme is to provide students with a means to integrate experiences within a formal compositional framework. In any completed visual statement or work of art there are components which comprise the statement. These components are so interwoven as to make isolation of any one component difficult. However, to gain insight into a student's understanding of visual order or unity in visual expression, it is useful to analyze the various individual components that make up a particular student work. By concentrating on selected individual parts of the whole, a student's understanding and connected ability to utilize necessary components may be made more clear (Saskatchewan Dept. of Ed., 1978). The accompanying chart illustrates a flow of components toward the completed statement. These components have been chosen as instructional variables in this study because they already form part of a recognized programme of art and provide the means to make possible comparisons between the performance of regular class-room students and E.M.R.s.

ORGANIZATION (of the elements of design)

line

shape

value

texture

colour

COMPOSITIONAL BALANCE

VISUAL WEIGHT, COLOUR, PLACEMENT

DOMINANCE

VARIETY, CONTRAST

IMPLIED MOVEMENT

UNITY

(completed visual statement)

Areas of concern for testing

The following may serve as definitions for this study

1. Organizational Unity refers to the organization and integration of the elements of design. Line, shape, value, texture, and colour are elements that are present in all visual images, regardless of the simplicity or complexity of the image. They are therefore the elements that all image makers must deal with when making a visual statement.

It further follows that the ability to organize the elements of design on a given picture plane demonstrates an understanding of the interrelationships between the various elements that comprise that image (Arnheim, 1974).

The whole of the picture plane will be considered when engaged in image making. There is to be no background or un-worked space.

2. Compositional Balance (Visual Weight) is of paramount importance when confronted with the problem of unity in visual presentation. For the purpose of this investigation balance refers to an arrived-at gravitational equilibrium much like the working of an apothecary scale. However, rather than achieving balance through an actual physical weighing process, balance is arrived at through a visual judgement on the part of the observer, (Arnheim, 1974) in which dark areas are perceived as being "heavier" or having more weight than the lighter areas of the composition. Similarly, areas of intense colour are perceived as having more weight than areas of low intensity colour. Lines executed in a hard or soft manner may also be perceived as heavy and light respectively.

3. Compositional Balance (placement) deals with the arrangement on the picture plane of like and unlike shapes as well as consideration given to the size of specific areas within the plane.

A sense of balance can be achieved "through the choice of similar shapes, colours, or other characteristics of form; through the placement of the same - or different - forms in close proximity..."(Chapman, 1978)

Balance by placement also incorporates the phenomenon known as closure.

Closure is the tendency of the eye to complete a form that is only partially visible. Edges that seem to extend beyond their actual boundaries imply a complete or closed form. A symmetrical arrangement of elements that are approximately equal in psychological importance suggests equilibrium.
(Chapman, 1978, p.39)

A further consideration when dealing with balance by placement may be the visualization of a radiating star whose center is at the composition's center. Each directly opposite radiating line or point finds a balance in its counterpart. Therefore, an area at the top left of a composition will find its counterpart at the bottom right of the composition. When the counterparts are identical optical units a symmetrical balance is achieved. However, when the counterparts are dissimilar, such as a small area of strong colour and a large empty space, asymmetrical balance is achieved (Ocvirk, et al., 1968)

4. Dominance refers to the varying degrees of emphasis given to different parts of a composition. A featured part should be in contrast to its surrounding area, thus accenting its importance and its interrelationship with other areas within the composition.

To conserve the energies of the viewer, a work of art should be rhythmically articulated...With a good rhythmical distribution of dominant picture parts,...the duration of the viewer's attention will be enhanced.
(Ocvirk, et al., 1968, p.26)

5. Variety refers to the ability of a composition to sustain a viewer's attention.

If unity and variety are judiciously used as guiding principles for creating a work viewers are not likely to be easily bored or fully satisfied by a quick encounter with it
(Chapman, 1978, p.39)

Variety may include differences in colour, size of areas, textures, shapes, lines and value as well as external considerations such as varying degrees of abstraction, and the like.

6. Contrast-Elaboration deals with like and unlike areas presented in such a manner as to be perceived in opposition by themselves but unified in the whole, thereby heightening the importance of each.

This may be illustrated in the way the artist uses variety.

a) he finds variety in opposition or contrast
reconciles the visual differences to create unity

b) he will elaborate upon forces which are
equal in quality and strength...until a
satisfactory solution is reached.

(Ocvirk, et. al., 1968, p.26)

7. Implied Movement is the indication of eye travel along visual paths on the surface of the picture plane. To create movement on the surface of the picture plane the artist may employ the direction and/or boundary of a shape to lead the eye from one position to another. He/she may incorporate rhythmic repetition to guide the eye through associational means. Or he/she may create movement through colours and textures by relating their values to one another.

The exclusion of Colour as an area of concern for testing

Colour is at once one of the most exciting but also one of the most complex of visual phenomena when dealing with image making (Chapman, 1978). Short of studying its basic properties, the principles of mixing it in paint and possibly its symbolic use, an in depth study of colour would require too much time to be of significant value to the novice image maker.

Although colour was not excluded as an element for image making for either group, its formal properties were not considered as an area of concern for testing.

Intent of the Study

The purpose of this study was to investigate the premise that mentally retarded students (E.M.R.) respond to the same body of content and are capable of using the same art tools and materials as normal students (Miller & Miller, 1981). The study examined the degree of success achieved by E.M.R. students, compared with the degree of success achieved by students in a regular high school art class, when the objective for each group was the assimilation of a particular set of art concepts.

The study in the general context of classroom assimilation

Grouping is a natural and normal social activity usually occurring in line with the similarities of group members (Bierstedt, 1970). The Special Class is a group in much the same way as a regular class. Each member is a part of the recognized whole. Behaviour and achievement patterns are predictable within the group. When group mixing is imposed established patterns are disrupted and achievement levels are altered.

In order to facilitate the integration of Special Education into the mainstream of education as a whole the special class must move as a unit (Hunter, 1981) and thereby negates imposed group mixing. It is essential that students' achievement possibilities are not restricted by way of imposed changes in their learning environment. To this end the Special Class student must not be placed into

learning environments which are geared for and designed for the norm.

Although integration of the special group as a whole into the physical facilities of a conventional school is beneficial to both groups, (Hunter, 1981), when dealing with classroom instruction, the special student's educational needs will best be served in the company of other special students.

In discussing the handicapped and integration, Kilian states:

Whatever the level of ability, the in-class routine is about what it would be in a segregated school,

However, he goes on to say:

the children often mingle with other pupils - watching or taking part in games, using the library, ...They move... learning every minute. Like all kids, they learn readily from their peers, so their behaviour becomes more appropriate as they watch how other kids get along. (Kilian, 1983, p.B3)

This statement supports the idea of normalization suggested by Gold (1972) and adopted as a guiding philosophy by many associations for the mentally handicapped (Derkach, 1983).

The Research Design

Statement of the Problem

The Special Class, under the direction of the special class teacher tends to engage in art activity leading towards the completion of some project, much along the lines of a "shop" programme. The end result, the product, is stressed as being all important. This occurs in spite of arguments (Lowenfeld, 1957) on the growth and development of children that claim the process is more important than the product. Too little attention is given to the actual development of the child's perceptual and cognitive abilities while too much attention is focused on the correct use of materials (Naumberg, 1973).

In part this may be attributable to lack of confidence felt by the special class teacher. The services of a specialist art teacher might aid in the maximization and acceleration of perceptual development since the special class teacher is generally neither trained in art education nor in possession of a general understanding of the arts. It may be, therefore, that E.M.R. students do not achieve results comparable with students in regular art classes simply because they do not have comparable quality of instruction. (Miller & Miller 1981).

The problem may therefore be stated as follows: Is it possible to measure progress in art exercises undertaken by a regular class and by a class of E.M.R.s to determine the extent to which E.M.R.s may assimilate concepts and complete activities from an art programme designed for normal classes?

Identification of the "Special Class" in the study

The designation E.M.R. is applied to students whose I.Q.'s fall within a 50 - 75 range (James, 1983). Data for the E.M.R. class in this study show that they all fit within these tolerances.

<u>Student No.</u>	<u>Age</u>	<u>I.Q.*.</u>
1.	19	50-60
2.	18	62-67
3.	18	65-75
4.	17	55-60
5.	16	62-70
6.	16	60-70
7.	15	55-60
8.	15	51-56
9.	15	55-60
10.	14	68-72
11.	13	62-64

*Wechsler Intelligence Scale for Children-Revised (WISC-R)

Hypotheses:

For research purposes, the problem is restated in the form of three hypotheses.

A. There will be no significant differences in performance in pre and post-test results in art tasks undertaken by an E.M.R. class.

B. There will be no significant differences in pre and post-test results by a regular art class, when that class is given material identical to that given the E.M.R. class.

C. There will be no significant differences in the relative degree of performance by regular class and E.M.R. class members on assigned art tasks according to the following criterion variables:

1. organizational unity
2. visual weight
3. placement
4. dominance
5. variety
6. contrast
7. movement

Procedures

Two classes within one British Columbia high school taught by the same instructor, formed the two groups studied. The normal class served as a control group providing an indication of normal progress.

The E.M.R. class served as the test group. The instructor used the same lessons and relevant lesson aids (Appendix A(1), A(2)) to present identical content to a regular (norm) grade 10/11 combination introductory class and an E.M.R. class. Three expert judges applied numerical ratings, to resultant student art works, which were subject to a two-tailed t test (non-normal) to determine whether significant progress in performance resulted on the part of each group.

Pre-testing/Post-testing

Members from both groups, E.M.R. and norm, were asked to execute identical pre and post-test assignments. They consisted of a freehand line drawing as well as a tempera (painting) composition. Choice of subject matter for compositions was limited to available objects in the art studio.

Following the execution of studio lessons over a six month period all works from both groups were numbered, randomized, and assessed on seven dimensions by three judges, all high school teachers of art in the same school.

Although research has suggested that a minimum of five lessons is necessary for the effects of a particular treatment to become apparent (Burkhart, 1965), it is the writer's belief that time to assimilate information is also of paramount importance. To this end daily lessons and follow-up class time for completion were supplied over a period of six consecutive months. The lessons are summarized in Appendix A.

General Limitations and Assumptions

1. This study deals specifically with art education, its aims for the general education (B.C. Ministry of Ed., 1979) of the individual within the confines of the public school system, and the extent to which these are applicable to E.M.R. students. Art therapy, while acknowledged to be of enormous benefit to the mentally handicapped, (Ensher, 1969; Sperno & Weiner, 1973; Naumberg, 1966; Uhlin, 1973) is for the purpose of this study, irrelevant. The primary goal of education is the development of an individual's full potential (B. C. Ministry of Ed., 1979).

Schooling is to become a means of personal fulfillment, to provide a context in which individuals discover and develop their unique identities. Curriculum--is a pervasive and enriching experience with implications for many dimensions of personal development.

(Eisner & Vallance, 1974, p.105)

Art therapy falls far short of this goal, since it supposedly merely conditions the learner toward a state of readiness for learning. (Levic, 1967).

Reporting on Art Therapy programmes, Canadian Press writes:

It's a prevention for emotional illness
The child is allowed to express aggression in a
safe way... art therapy is a ...way to treat
emotional problems.

(Toronto (CP), 1978)

Arnheim's words are also instructive:

shapeless emotion is not the desirable
end result of education and therefore cannot
be used as its means.

(Arnheim, 1974. p.207)

2. E.M.R., that group of learners identified as educable mentally retarded within the boundaries of the public school system, was the test group. No other group under the general heading of Special Education is considered in this study. Literature describing studies that have been done in art education with the handicapped deals mainly with the multiply handicapped, (Rubin, 1981), or with the more severely mentally handicapped such as T.M.R. groups as reported by Miller and Miller (1982).
3. E.M.R. students need to learn the same things as do students in the general stream of public schooling.

Art education for the slow learner, as for the normal child, is primarily to assist in intellectual emotional and social growth through self-expression and ... development.

(B.C. Dept. of Ed., 1965).

The Ministry of Education expects that all * pupils will have an opportunity in school to participate in one or more fields of the arts. This is a requirement in elementary schools and a desirability in the secondary school experience.

(B.C.Ministry of Ed., 1979)

* Emphasis mine

Thus the rationale for Art education for the E.M.R. may be said to be similar to the rationale for art education for normal classes in that perceptual growth in any student can not be ignored when dealing with the education of that student (Lanier, 1982).

4. The resultant products of student art activity may be viewed as evidence of the measure of student growth. It serves as the conclusion to an undertaken learning experience, and thus aids in the fostering of growth. Apart from physical maturation, growth is only made apparent in expression in audible or visible signs and symbols, of which art works form one part. (Read, 1945).

CHAPTER II

ART EDUCATION AND THE CHILDHistorical beginnings

Interest in the child as artist has its origins in the 19th century. Typical of those attitudes were the views on education held by Johann Pestalozzi. Describing his methods as "the psychologizing of learning", he was convinced that there were great benefits to be gained for the child by the practice of drawing.

the wish to draw and the capacity of measuring, which are developed naturally and easily in the child (as compared to the toil with which he is taught reading and writing) must be restored to him with greater art or more force; if we would not injure him more than the reading can ever be worth.

(Sutton, 1967, p.30)

His insistence that methods of teaching must be based upon the study of the child has influenced numerous educators.

Friedrich Froebel, founder of the Kindergarten Movement, was obviously among the influenced. Writing in 1826, he states:

The word and the drawing, therefore, belong together inseparably, as light and shadow, night and day, soul and body do. The faculty of drawing is, therefore, as much innate in the child, in man, as is the faculty of speech, and demands its development and cultivation as imperatively as the latter; experience shows this clearly in the child's love of drawing, in the child's instinctive desire for drawing.

(Sutton, 1967, p.36)

The introduction of colouring books into public school systems of Germany resulted from concepts originated by the Kingergarten Movement.

In 1843, Horace Mann of Massachusetts toured Europe to acquire insight into the European educational systems. In his "Seventh Annual Report" he extols the high standards of hand writing in the Prussian Schools and puts this down to extra training of the hand and eye arising from the inclusion of drawing in the curriculum. He also describes how a simple drawing can communicate more information than any amount of words and further that drawing develops the talent of observing.

Observation as related to perception has an influence on understanding what is being looked at (Lanier, 1982). Thus it may be said that the act of drawing influences an individual's ability to understand and is thereby an essential element in the education of any student.

After the disastrous showing of British manufactured articles in the World's Fair of 1851, England attacked the problem by completely reforming her schools of design

in the faith that instruction in art as applied to industry could be reduced to rational methods, could be treated according to recognized educational principles, and so no longer need be left to the fancy of each individual nor to the blind caprice of the hour.

(Green, 1966, p.3)

Succeeding World Fairs demonstrated the success England had achieved. Art as a subject for study in public schools was therefore considered to be of paramount importance to the welfare of the nation. However, the art programmes were to be primarily skill-oriented and directed toward the service of industry (Pappas, 1970, p.13).

The United States, whose showings in these Fairs ranked close to the bottom, followed England's lead for purely utilitarian reasons, and in 1870 the newly appointed Standing Committee on Drawing sought out a highly qualified supervisor of drawing. Thus Walter Smith, art master at Leeds, and professional sculptor, came to America.

Smith's plan encompassed all grades, and by progressive developmental stages carried art instruction from elementary learning at the lowest grade to pre-professional training in the highest. It was predicated on the belief that drawing was the basis of all industrial art and that any average person could learn to draw. By basing art instruction on principles that could be stated and consequently could be taught and learned, he attempted to place drawing as a pedagogical tool in the hands of every teacher.

In 1873, with Smith at the helm, the Massachusetts Normal Art School was established. It was to provide specially trained art teachers who would direct the effort of teachers in the common schools.

Although seemingly successful, opposition was mounting. Many teachers and members of the public thought that drawing was a specialty and lay outside the realm of public education. They argued that time was spent on drawing at the expense of more "important" subjects. High school teachers were not prepared to follow through with Smith's plan. Walter Smith was subsequently dismissed and returned to England in 1882.

Art education to this point was mainly to serve utilitarian ends giving little or no credit or benefit to an individual's growth. It seemingly set the ground rules for copybook and similar low level reproduction which to some degree is still prevalent today.

The period from 1860 to 1900 was one of enormous vitality in the western world. Conceptions of knowledge and conditions under which it was obtained were reformulated. The work of Darwin in particular caused educators to see the growing child in a new light. The child develops to maturity, he does not merely grow.

For John Dewey, America's most influential philosopher on education, the child was an organism that lived both in and through an environment. As conditions within the environment changed they posed a problem for that child. The problem was a challenge which was resolved through intelligent action. The teacher needed to understand the child to know what conditions

were likely to challenge him in order to arrange the environment so that an educationally problematic situation would result.

Thus education became child centered (Dewey, 1958).

The consequences of these views for art education were highly significant. Children in the school system were persons with wants and needs, not objects to be stuffed. The desired creative intelligence to be embodied in all children through the schools opened the gates for art education, for art was the ideal medium to foster the general creative abilities. Through art, children were provided with opportunities for creative self-expression, thereby enhancing their development.

E.M.R. students, like all students, may benefit from the use of a vehicle for self-expression, found in art education, in that this activity may enhance their development.

Current Status

In January of 1960, art in the British Columbia school curriculum was dealt a severe blow. The report of the Chant Commission stated in its recommendations that the general aim of the school system should be

"that of promoting the intellectual development of the pupils and that this should be the major emphasis throughout the whole programme"

(Report of the Royal Commission on Education,
Victoria: Province of British Columbia, 1960.)

This statement in itself appears to be educationally sound. However, the report goes on to place degrees of value on particular subject areas with a series designated to be of lesser importance. Art is cited as one of the latter.

In November of 1976, the B.C. Ministry of Education issued What Should Our Children Be Learning? (B. C. Ministry of Ed., 1976)

In this document the arts are cast into a subordinate role to serve merely as reinforcement to the learning of some skill.

Fine Arts is to be used to reinforce concepts in the relationships involving space and shape for the skills of mathematics. The following document Guide to the Core Curriculum, (B. C. Ministry of Ed., 1977), offers no significant changes in approach. Although the ministry has recognized some very elementary uses of art, the prescribed curriculum fails to acknowledge the full value of the "aesthetic experience" available from an art programme.

Following overwhelming criticism of the Ministry concerning its stance in the Fine Arts in education, the Ministry issued a statement in March of 1979, on the fine arts and the core curriculum.

The Ministry has taken the position that this is a vitally important aspect of a student's education but that because of the rich and diverse potential it has for learning, the development of provincially prescriptive courses is not desirable. Instead, general curriculum policy guides will be prepared and schools are asked to ensure that within these specific significant learning experiences are provided.

It will do no service to children if the focus on basic skills leads to a neglect or denigration of the arts in the total education of the student.

(B. C. Ministry of Ed., 1979)

The subcommittee for Art (8-12) was established in December of 1977. A new curriculum guide for British Columbia's secondary school art programmes was to be composed. By the spring of 1980 the first draft was made available to B.C. art teachers at the annual B.C.A.T.A. conference. Following teacher input and subsequent revision, the new art guide was released in 1984.

Within the pages of this two volume guide there is no reference to Special Education and related instruction in art.

The 1984 Special Education Supplement to the Core Curriculum has devoted one page to visual arts activity and related educational goals. A copy of this page is presented as Appendix E.

For more than a century art as an area of study in the public school has addressed two main areas of concern. Art education for its utilitarian applications followed by art education to foster individual growth have both circumvented the educable mentally retarded child in the school. This appears to be continuing.

Special Education in British Columbia

In 1890 an appropriation of funds was made available by the B.C. Legislature for the purpose of sending B.C. students to the Institution for the Deaf and Dumb in Winnipeg, Manitoba (Csapo & Goguen, 1980). This appears to be the first admission of responsibility for providing education for some handicapped children of the province of British Columbia.

During the years of 1910 to 1920 both Vancouver and Victoria School Districts pioneered programmes in special education for the mentally retarded, the deaf and the blind. This culminated in 1922 when programmes for the deaf and blind were combined into a residential and day school programme under the responsibility of the Provincial Department of Education.

The Putman-Weir Survey of 1925, a commission of inquiry, recommended modification of the curriculum for the mentally retarded, and the establishment of special schools and facilities. However, not until 1956 did special education emerge as an integral part of a school district's responsibility. That year The Department of Education introduced special approval as part of the basic grant to school districts. Classes for mentally retarded children were permitted to operate as an integral part of the public school system (B.C. Dept. of Education, 1956).

The Chant Report of 1960, although full of recommendations for changing the existing school system, devoted little attention to special education. In fact, not until 1969 did Special Education receive full recognition with the creation of a Special Education Division within the Department of Education. The education of the handicapped became a priority concern and numerous programmes were initiated. In 1972, Remedial and E.M.R. programmes were combined under the title Learning Assistance Programmes. This step reflected an attempt to keep as many children as possible

integrated in the mainstream of education. Unfortunately, this attempt resulted in the creation of work oriented courses at the secondary school level.

This was seen by many teachers, parents and students as a dumping ground for all types of problem students ranging from severe discipline cases to those with emotional problems as well as for those who are generally just not capable of completing a regular programme.

(Csapo & Goguen, 1980, p.9)

This special programme, in many districts the only Special Education programme, became the depository for most atypical students, including the E.M.R.

Throughout the 1970s parental and general public opinion had caused most school districts to integrate, with support, all but the most severely handicapped into regular schools. The objectives of special education are viewed as the same as those for normal classes. This shift in philosophy may be said to be sounded by the Ministry of Education as follows:

Education in the Fine Arts is ^{*}an essential part of the development of every student.
(B.C. Ministry of Ed., 1984)

Summary

This chapter has presented a brief overview of ideas held by educators over the last 100 years, that relate to child development. It also contains references to special education programmes, indicating the importance of political motives that influence the form and content of these programmes.

* Emphasis mine

CHAPTER III

CONDUCT OF THE STUDY

Setting of the Study and Population Employed

The study took place within a school district in British Columbia. A district high school provided the physical setting. The time allotment for the study was between mid September 1983 and the end of February 1984. The two participating groups were the school's Special Class, and one Art 10/11 (elective) introductory art class, scheduled for one out of seven blocks on a six day rotating cycle. The classes participated in the experiment for an equal length of time each scheduled period, and were taught by the same instructor throughout.

Classes comprised students of both sexes. A total of 37 students was engaged in the project: 26 in the normal class and 11 in the E.M.R. class. However, due to sometimes poor attendance at school over a period of six months not every student participated in every presented lesson and subsequent art activity. Furthermore, since the study was conducted within the framework of a regular introductory art programme, some students chose to undertake the same assignment more than once. This is standard practice within the department and resulted in the creation of 446 student art works from a total of 15 different assignments undertaken by each of the two groups.

Materials for the 15 lessons were readily available since the lessons comprised a regular programme for that time period and standard art supplies, normally available in the art room, were used.

Procedure in the Classroom

Members of the E.M.R. group were informed that they would be actively engaged in an art programme that is normally intended for a grade 10/11 combination art class. The duration of this programme was to be of six or more months. They were further asked if they had any objection to participating in such a study. No objections were voiced. On the contrary, they were keen to participate. Both the E.M.R. group and one of three grade 10/11 combination art classes chosen at random in turn began the programme at approximately the same time.

The first two assignments served as pre-tests. Students were provided with an assortment of different objects such as a shoe, a carburettor, and a coal-oil lamp, and asked to draw one or more of these objects with pencil on manila creme paper, 18" X 24" in size. No further instruction was given.

The second assignment required the use of black tempera paint and brush on mill board, size 8-1/2" X 10". Students were asked to draw or paint the person sitting nearest them. No further instruction was given. The two assignments occupied four periods. (180 minutes)

Following the initial two assignments students from both groups began work on the regular programme and continued to do so for eleven assignments. The lessons are outlined in Appendix A. Upon the conclusion of the last assignment, students completed two assignments which served as post-tests to the study. Material and instruction identical to the pre-test assignments was provided.

Instruction for pre and post-tests for both groups was identical, as previously stated. Instruction for programme content however was adjusted, first, to meet E.M.R. group needs, and second, to meet individual E.M.R. student needs. The main factor in this adjustment was the adjustment for language deficiencies on the part of the E.M.R. group. For example when presenting the concept of negative and positive space in image making to a regular class the terminology used would be negative and positive space. However, when addressing the same concept with an E.M.R. class the terminology used to describe the concept would be simplified to the negative space being referred to as white and the positive space as black or the positive space as the filled-in parts and the negative space as the empty or left-over parts.

Summary of Experimental Procedure

Two classes, one regular Art 10/11 combination class and a Special Class (E.M.R.) were assigned treatments identical in nature and scope. The classes were a part of the regular grouping within a senior secondary school.

The treatment consisted of fifteen assignments with the first two and last two serving as pre-test and post-test respectively. All interim assignments as well as pre and post-tests provided materials for analysis and comparison. Pre and post-test results provided within-group gains; interim assignments provided material for informal between-group comparisons.

Reproductions of selected students' works produced during the study may be found in Appendix D.

CHAPTER IV

COLLECTION OF DATAANDDESCRIPTION OF STATISTICAL PROCEDURESThe Evaluative Instrument

Using criteria developed for a provincial curriculum outline (Saskatchewan Dept. of Ed., 1978) a score card was designed and made available for use by three art educators serving as judges in evaluating student art works produced in fifteen assignments.

The score card is reproduced as Figure 1.

Scores were assigned on a scale from one to ten points.

The basis for each rating was as follows:

Score 1 the factor is completely lacking

Score 2 the factor is present in a negligible form

Score 3 the factor is present but in an underdeveloped form

Score 4 the factor is recognizable and perceptibly developed

Score 5 the factor is recognizable with satisfactory development

Score 6 the factor is recognizable with good development
so as to display its characteristic features

Score 7 the factor is recognizable with very good development
so as to display its characteristic features.

Score 8 factor is recognizable with excellent development
so as to display its characteristic features

Score 9 the factor is recognizable with superior development
so as to display its characteristic features

Score 10 the factor has been exploited to a very high degree;
the student has demonstrated high proficiency
in how the factor can best be used.

FIGURE 1

Judges' Score Card

SCORE CARD		STUDENT WORK #
rating from 1 to 10 (low to high)		
10 is possible		JUDGE IDENTITY #
1.	Organizational Unity	
2.	Compositional balance visual weight	
3.	Compositional balance placement	
4.	Dominance	
5.	Variety	
6.	Contrast	
7.	Movement	

Using a system of numerical grading that was familiar to all judges engaged within the study would seem to minimize discrepancies in evaluation between individual evaluators.

All three judges were art teachers within the school where the study took place and were familiar with the 1 to 10 rating scale. Its use as a means of assigning and measuring evaluation of student progress in art activity had been continuous over nine consecutive school years by each of the three judges.

Instructions to Judges

Judges were instructed to limit their observation and subsequent evaluation of student art images specifically in accordance with the stated seven areas of concern for testing outlined on Pages 7 - 11. Each of the seven areas for testing was discussed at a group meeting. To ensure that each judge had the same understanding concerning the seven test areas, stated definitions identical to those summarized in Chapter One were made available to each of the three judges. These definitions were used as guidelines for discussion. Judges agreed to use the stated definitions of the seven areas of concern as a guide to their marking or grading of presented student art works. No formal test of reliability was given to the judges, in light of the previous familiarity that all judges had with the evaluative instrument.

Scoring Procedure for Student Art Works

All works were identified and numbered on the back and random distribution of each of the 15 assignments was made, so that finally all works were randomly distributed and compiled to form three separate collections of student work, one for each judge.

This insured that each judge had a body of work to evaluate that was characteristic of the range of abilities displayed by both groups of students.

Score cards were reduced in size and arranged on 8-1/2" X 14" paper so as to fit nine separate score cards on each sheet. These sheets were compiled with copies of the stated definitions to form a booklet.

Each judge was assigned one of the three collections of works to score according to the seven categories. Each of the criteria was discussed again and judges began their scoring procedure. Following an initial scoring of some dozen pieces, judges were asked for comments or questions pertaining to the scoring procedure. Questions such as the following were typical. Are we to consider material manipulation? Should we look for neatness of execution? Judges were again directed to limit their scoring to fall in line with the same areas of concern for testing. General comments dealt with the judges' inability to easily identify from which group a particular work was taken. No clues as to student work identity were supplied. Following questions, scoring continued. Judges met on two separate occasions to complete the scoring of all student works. Number scores from judges' score cards were entered on a table.

Description of Statistical Procedures

Inter-judge reliability

Following the completion of judging, score cards were collected. The usual practice in demonstrating degree of agreement among judges is to use correlation analysis. In this case, however, the inequality of the two groups, and the lack of assurance of equal intervals between numerical scores precluded this. Instead a Chi Square test was employed. The results from the regular class post-tests were subjected to the Chi Square programme expressed in the formula

$$x^2 = \sum \frac{(O-E)^2}{E}, \text{ WHERE } O = \text{observed value} \\ \text{AND } E = \text{expected values}$$

The computer programme used was written for input to the TI-99/4A computer and is reproduced in Appendix B.

Post-test scores offered sufficient information input to test inter-judge reliability.

Where pre-tests and post-tests are equivalent forms of the same test, it is legitimate to compute gains whether or not the gains or the corresponding post-test scores are the data used with any of the standard error of difference formulas... For the same data and the same formula, gains and post-test scores will result in the same t.

(Engelhart, 1972, p.444)

Results on the seven (7) categories were 18.29, 12.06, 12.06, 20.66, 11.95, 14.29, and 31.92. With 18 degrees of freedom, x^2 is significant at the .05 level for 28.87. Only one (1) out of seven (7), the category of Movement, yielded a significant difference.*

* the binomial probability of 1 in 7 is significant at .05

As a result, one might elect to exclude Movement from further data analysis. However, as a general rule, results from twenty (20) significance tests are expected to yield one (1) test that appears to be significant (Willoughby, 1977). Therefore the χ^2 result as arrived at for category 7 (movement), $\chi^2 = 31.9$, does not necessarily imply a significant difference in the judges' marking or grading results. A satisfactory level of inter-judge agreement is therefore presumed.

TABLE I

POST-TEST (REGULAR CLASS)

χ^2 VALUE and RELATED SIGNIFICANT LEVEL on EACH of SEVEN CATEGORIES
(Inter-Judge Reliability)

CATEGORY		χ^2	SIGNIFICANCE LEVEL
1.	UNITY	18.29	.44
2.	WEIGHT	12.06	.84
3.	PLACEMENT	12.06	.84
4.	DOMINANCE	20.66	.30
5.	VARIETY	11.95	.85
6.	CONTRAST	14.29	.71
7.	MOVEMENT	31.92	.02

**
- df = 18

**
df = (number of rows - 1) (number of columns - 1)
= (2) (9)
= 18
.05 level is 28.87 .01 level is 34.80

Statistical procedures for analysis of data

Number scores from Pre-tests and Post-tests from both test groups obtained from judges' score cards, entered onto identification tables, were employed as data and entered into the TI99/4A computer. Using the TI99/4A Statistics command module, data were entered under Descriptive Statistics.

Since this study made use of only two populations and these populations were further unequal, neither the standard ANOVA nor ANCOVA was used as the statistical procedure to analyze obtained data. Instead, adjusted t tests (Ferguson, 1959, p.144) were applied.

The results obtained from "Descriptive Statistics", in the TI 99/4A Statistics Command Module (Mean M1 and M2, variance V1 and V2, and number N1 and N2), were recorded as data and entered in the computer programme detailed in Appendix C, which combines the two above-mentioned formulas for calculating t. The t values and F ratios resulting from this programme were recorded.

The Significance Level Calculator in the Statistics command module was then used to compute the significance level of various values of previously computed statistics (x^2 , F, and t) as outlined in Tables I, II, and III.

TABLE II

Results on 7 Categories (Pre-test and Post-test) for
Regular (REG) and Special (SPEC) groups

CATEGORY	NAME	N	VARIANCE	F	SIG.LEVEL	df. +
UNITY	REG/PRE	28	1.668	1.441	.163	$\frac{37}{27}$
	POST	38	2.404			$\frac{27}{27}$
	SPEC/PRE	25	6.214	1.508	.133	$\frac{24}{34}$
	POST	35	4.119			$\frac{34}{34}$
WEIGHT	REG/PRE	28	2.360	1.605	.09	$\frac{27}{37}$
	POST	38	1.470			$\frac{37}{37}$
	SPEC/PRE	25	4.4	1.027	.463	$\frac{24}{34}$
	POST	35	4.28			$\frac{34}{34}$
PLACEMENT	REG/PRE	28	1.107	2.184	.019**	$\frac{37}{27}$
	POST	38	2.418			$\frac{27}{27}$
	SPEC/PRE	25	4.078	1.074	.417	$\frac{24}{34}$
	POST	35	3.795			$\frac{34}{34}$
DOMINANCE	REG/PRE	28	4.852	1.403	.168	$\frac{27}{37}$
	POST	38	3.457			$\frac{37}{37}$
	SPEC/REG	25	5.113	1.443	.16	$\frac{24}{34}$
	POST	35	3.543			$\frac{34}{34}$
VARIETY	REG/PRE	28	.078	5.243	.001*	$\frac{37}{27}$
	POST	38	4.09			$\frac{27}{27}$
	SPEC/PRE	25	1.96	1.505	.15	$\frac{34}{24}$
	POST	35	2.95			$\frac{24}{24}$
CONTRAST	REG/PRE	28	2.56	1.103	.4	$\frac{37}{27}$
	POST	38	2.825			$\frac{27}{27}$
	SPEC/PRE	25	5.366	1.454	.155	$\frac{24}{34}$
	POST	35	3.689			$\frac{34}{34}$
MOVEMENT	REG/PRE	28	2.122	2.815	.003*	$\frac{37}{27}$
	POST	38	5.975			$\frac{27}{27}$
	SPEC/PRE	25	3.481	1.172	.347	$\frac{34}{24}$
	POST	35	4.078			$\frac{24}{24}$

$$+ df = \frac{N_1 - 1}{N_2 - 1}$$

* p .01
** p .05

The Pre/Post-test scores were used to test the hypotheses:

A. There will be no significant differences in performance in pre and post-test results in art tasks undertaken by an E.M.R. class on each of the following criterion variables:

1. organizational unity
2. visual weight
3. placement
4. dominance
5. variety
6. contrast
7. movement

B. There will be no significant differences in pre and post-test results by a regular art class, when that class is given material identical to that given the E.M.R. class, on each of the following criterion variables:

1. organizational unity
2. visual weight
3. placement
4. dominance
5. variety
6. contrast
7. movement

The programme scores (i.e. results achieved on each of the interim assignments) were used to test the hypothesis:

C. There will be no significant difference in the relative degree of performance by regular class and E.M.R. class members on assigned art tasks according to the following criterion variables:

1. organizational unity
2. visual weight
3. placement
4. dominance
5. variety
6. contrast
7. movement

Acceptable Levels of Significance for Statistical Data

"The higher the level of significance specified, the less likely it is that errors of the first kind i.e. rejecting when one ought to accept the hypothesis will occur."
(Engelhart, 1972, p.253)

Therefore, the .01 level of significance was used for the acceptance or rejection of each hypothesis in connection with pre and post-test scores from both test groups.

However, the "rejection of a null hypothesis at the 5 percent, or even the 10 percent, level may justify a decision to change to some new method of instruction which requires no more effort and expense than the one now used."
(Engelhart, 1972, p.253)

Therefore, the .05 level of significance was used for the acceptance or rejection of each hypothesis in connection with the programme (E.M.R. versus regular).

CHAPTER V

ANALYSIS OF FINDINGS

This chapter deals with the recording and analysis of results obtained from statistical procedures outlined in Chapter IV.

Findings Concerning Differences between Pre- and Post- test scores
for the two Treatment Groups

The null hypothesis (H_{O_A}) is restated

There will be no significant differences in performance in pre and post-test results in art tasks undertaken by an E.M.R. class on each of the following criterion variables:

1. organizational unity
2. visual weight
3. placement
4. dominance
5. variety
6. contrast
7. movement

The null hypothesis (H_{O_B}) is restated

There will be no significant differences in pre and post-test results by a regular art class, when that class is given material identical to that given the E.M.R. class, on each of the following criterion variables:

1. organizational unity
2. visual weight
3. placement
4. dominance
5. variety
6. contrast
7. movement

The results of the analysis by revised t test for each of the criterion variables are presented in Table III.

TABLE III
SIGNIFICANCE LEVEL OF t VALUE
PRE-TEST vs POST-TEST

NAME	CATEGORY	t	df*	SIG. LEVEL	PRE/POST MEANS
PRE/POST-REG**	UNITY	15.521	64	.001	2.2/7.7
PRE/POST-SPEC***	UNITY	3.876	58	.001	3.8/6.2
PRE/POST-REG	WEIGHT	12.267	64	.001	2.7/7
PRE/POST-SPEC	WEIGHT	4.570	58	.001	3.4/5.9
PRE/POST-REG	PLACEMENT	13.636	64	.001	2.5/6.9
PRE/POST-SPEC	PLACEMENT	5.461	58	.001	2.8/5.7
PRE/POST-REG	DOMINANCE	4.743	64	.001	4/6.5
PRE/POST-SPEC	DOMINANCE	2.572	58	.01	4/5.5
PRE/POST-REG	VARIETY	10.610	64	.001	1.9/5.9
PRE/POST-SPEC	VARIETY	5.847	58	.001	2.3/4.7
PRE/POST-REG	CONTRAST	8.578	64	.001	2.7/6.3
PRE/POST-SPEC	CONTRAST	2.993	58	.004	3.6/5.3
PRE/POST-REG	MOVEMENT	8.133	64	.001	1.5/5.8
PRE/POST-SPEC	MOVEMENT	3.428	58	.001	2.7/4.5

Graphs illustrating the difference in the pre-test and post-test means for both groups are presented as figure 2 and 3 on pages 49 and 50.

*df = $(N_1 + N_2) - 2$

** regular class

*** special class

(Organizational) unity, $H_0 A$ & $H_0 B$ (1). There is no significant difference in performance between pre-test and post-test scores for (A) Regular Class and (B) Special Class on the criterion "unity".

CRITERION	GROUP	t	df	PROBABILITY
1	A	15.521	64	.001
	B	3.876	58	.001

The significance level for $H_0 A$ & $H_0 B$ (1) was beyond .01 for both groups A and B. The null hypotheses were therefore rejected.

(VISUAL) WEIGHT $H_0 A$ & $H_0 B$ (2). There is no significant difference in performance between pre-test and post-test scores for (A) Regular Class and (B) Special Class on the criterion "weight".

CRITERION	GROUP	t	df	PROBABILITY
2	A	12.267	64	.001
	B	4.570	58	.001

The significance level for $H_0 A$ & $H_0 B$ (2) was beyond .01 for both groups A and B. The null hypotheses were therefore rejected.

Placement, $H_0 A$ & $H_0 B(3)$. There is no significant difference in the performance between pre-test and post-test scores for (A) Regular Class and (B) Special Class on the criterion "placement".

CRITERION	GROUP	t	df	PROBABILITY
3	A	13.636	64	.001
	B	5.461	58	.001

The significance level for $H_0 A$ & $H_0 B$ (3) was beyond .01 for both groups A. and B. The null hypotheses were therefore rejected.

Dominance, $H_0 A$ & $H_0 B$ (4) There is no significant difference in performance between pre-test and post-test scores for (A) Regular Class and (B) Special Class on the criterion "dominance".

CRITERION	GROUP	t	df	PROBABILITY
4	A	4.743	64	.001
	B	2.572	58	.01

The significance level for $H_0 A$ & $H_0 B$ (4) for Groups A was beyond .01 while the significance level for group B was .01. The null hypotheses were therefore rejected.

Variety, $H_0 A$ & $H_0 B$ (5) There is no significant difference in performance between pre-test and post-test scores for (A) Regular Class and (B) Special Class on the criterion "variety".

CRITERION	GROUP	t	df	PROBABILITY
5	A	10.610	64	.001
	B	3.876	58	.001

The significance level for $H_0 A$ & $H_0 B$ (5) was beyond .01 for both groups A and B. The null hypotheses were therefore rejected.

Contrast, $H_0 A$ & $H_0 B$ (6) There is no significant difference in performance between pre-test and post-test scores by (A) Regular Class and (B) Special Class on the criterion "contrast".

CRITERION	GROUP	t	df	PROBABILITY
6	A	8.578	64	.001
	B	2.993	58	.004

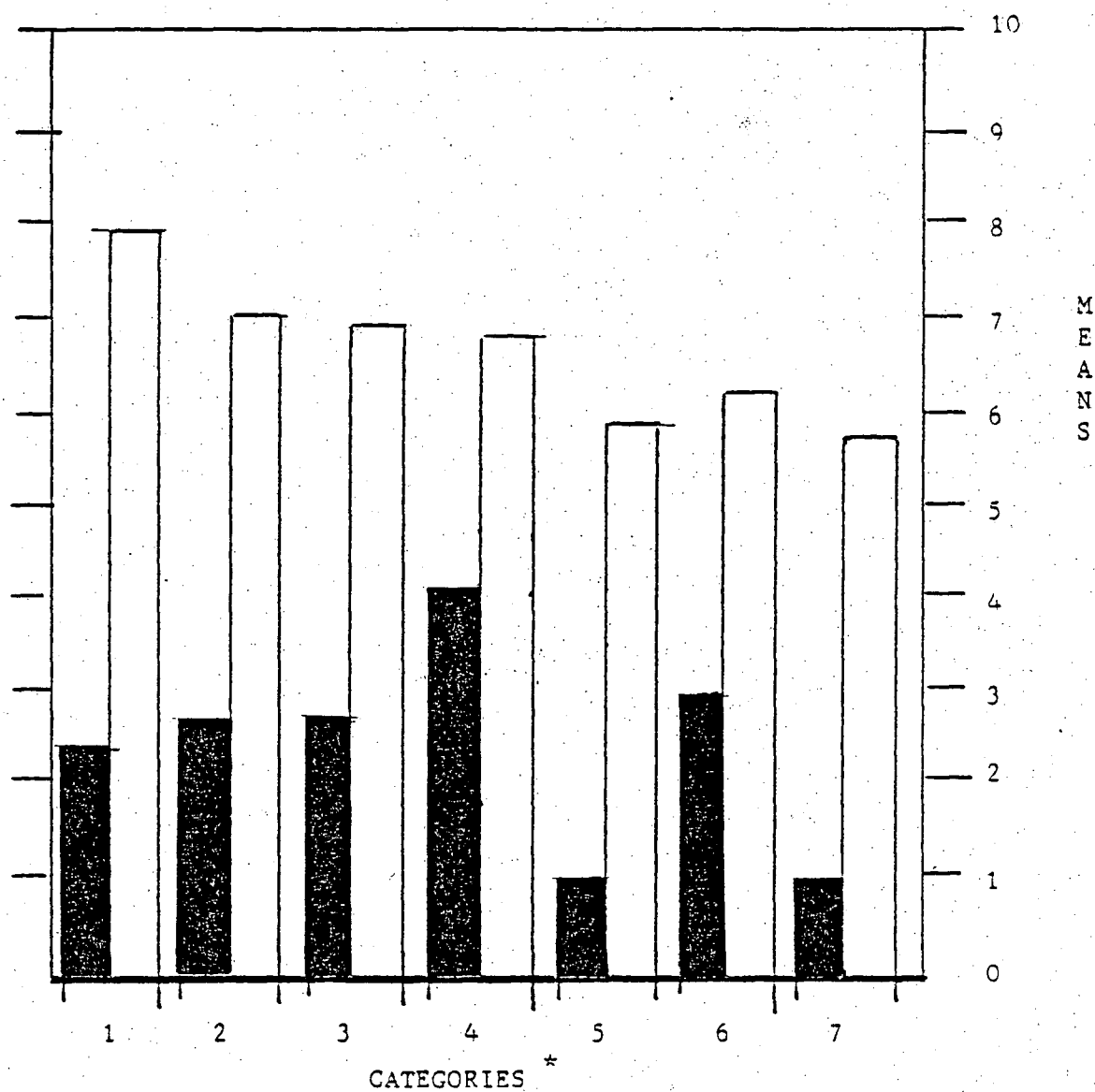
The significance level for $H_0 A$ & $H_0 B$ A(6) was beyond .01 for both groups A and B. The null hypotheses were therefore rejected.

MOVEMENT, $H_0 A$ & $H_0 B$ (7) There is no significant difference in performance between pre-test and post-test scores for (A) Regular Class and (B) Special Class on the criterion "movement".

CRITERION	GROUP	t	df	PROBABILITY
7	A	8.133	64	.001
	B	3.428	58	.001

The significance level for $H_0 A$ & $H_0 B$ (7) was beyond .01 for both groups A and B. The null hypotheses were therefore rejected.

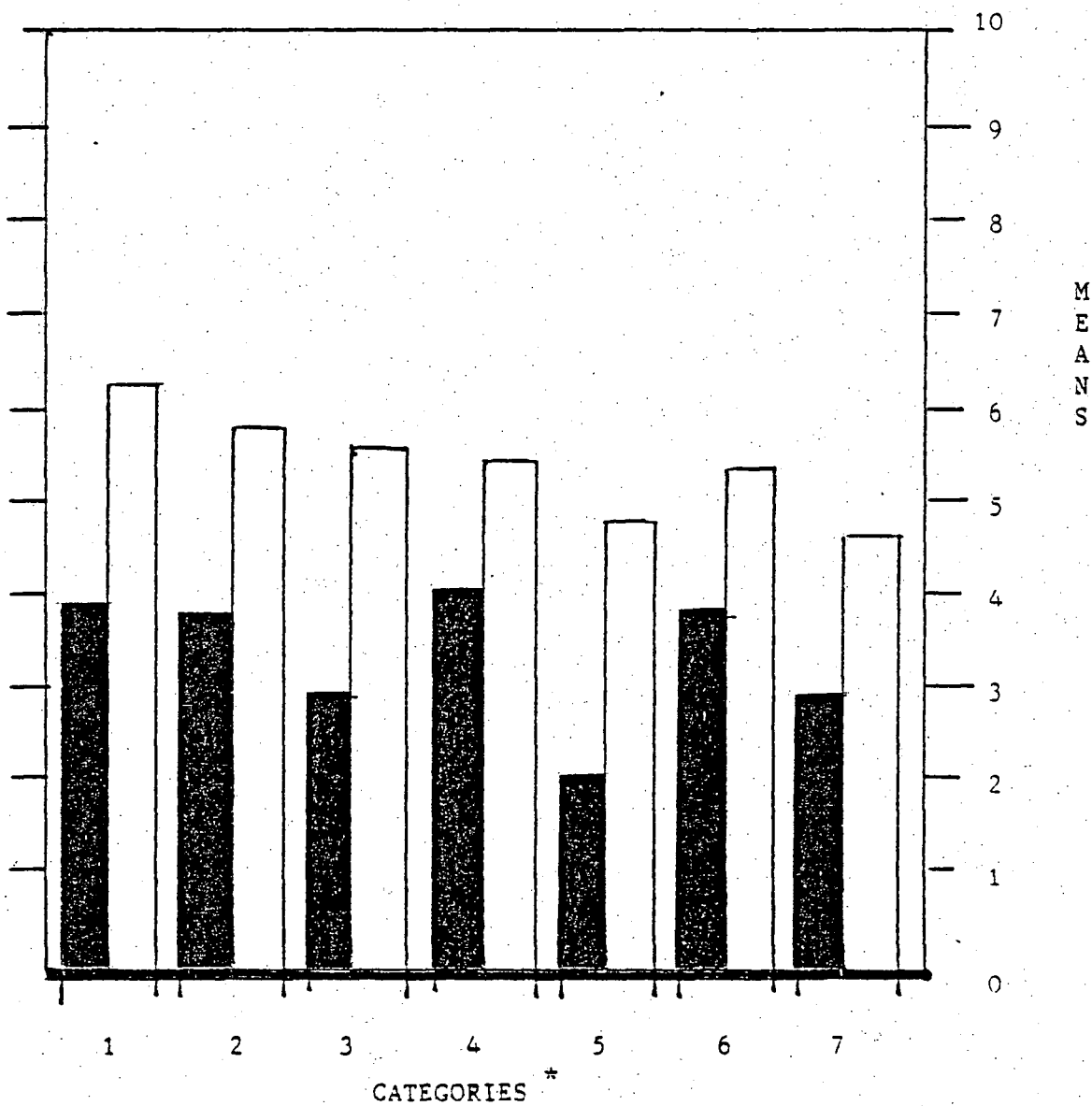
FIGURE 2
PRE-TEST AND POST-TEST MEANS
FOR REGULAR CLASS (A)



Shaded Bars = Pre - Test
Plain Bars = Post - Test

* Detailed on Page 43

FIGURE 3
PRE -TEST AND POST -TEST MEANS
FOR SPECIAL CLASS (B)



Shaded Bars = Pre- Test

Plain Bars = Post - Test

*

Categories detailed on Page 43

Discussion of Pre-/Post-test Results

The most noticeable feature of the above series of findings is the consistency in mean gains from pre-test to post-test for groups A (Regular) and B (Special). Both groups gained considerably in all of the seven categories. The level of significance aptly demonstrates that the special class and the regular class can learn from the same programme.

Reference to bar graphs in Figure 2 and Figure 3, (page 48 and 49), drawn up to illustrate class performances revealed by the testing of each of the above hypotheses, reinforces the evidence of gain for both test groups. The difference in means from pre-test to post-test however, revealed a somewhat superior performance by group A, the regular class.

The consistently high pre-test means achieved by group B, the special class, could be the result of that group's previous contact with art activity. In that sense, the special class might be said to be atypical. While group A, the regular class, was comprised of students who for the most part have had little or no contact with art activity and related instruction in the classroom, group B, the special class, was comprised of students who for the most part had previous instruction in art activity with this researcher. However, once instruction to both groups was complete, group A demonstrated higher post-test means.

The differences in mean gains between group A and Group B on pre-test and post-test scores, which is obvious when viewing Figure 2 and Figure 3, was not a consideration for (H_{0A} & H_{0B}). In fact such comparisons were deliberately avoided. Nevertheless, it is interesting and perhaps predictable that the results indicate that group A, the regular class, learned more and seemingly at a faster rate than did group B, the special class.

Summary of Results Derived from the Hypothesis concerning Differences

Between pre and post-test scores for the two Treatment Groups

The following hypotheses were tested:

- H_{0A} There will be no significant differences in performance in pre and post-tests results in art tasks undertaken by an E.M.R. class, on each of the following criterion variables:
1. organizational unity
 2. visual weight
 3. placement
 4. dominance
 5. variety
 6. contrast
 7. movement

On the basis of results obtained the null hypothesis H_{0A} was rejected at the .01 level of significance in terms of all seven criteria.

- H_{0B} There will be no significant differences in pre and post-test results by a regular art class, when that class is given material identical to that given the E.M.R. class, on each of the following criterion variables:
1. organizational unity
 2. visual weight
 3. placement
 4. dominance
 5. variety
 6. contrast
 7. movement

On the basis of results obtained the null hypothesis H_0B was rejected at the .01 level of significance in terms of all seven criteria.

Findings Concerning Differences in Performance between the two
Test Groups on Programme Scores

The null hypothesis (H_0C) was restated:

C. There will be no significant differences in the relative degree of performance by regular class and E.M.R. class members on assigned art tasks according to the following criterion variables:

1. organizational unity
2. visual weight
3. placement
4. dominance
5. variety
6. contrast
7. movement

The results of the analysis by adjusted t test for each of the criterion variables are presented in Table IV a,b,c,d.

The significance level for H_0C was beyond .05 on 28 out of 77 categories. The null hypothesis was therefore rejected on those 28 categories.

The significance level for H_0C was not beyond .05 on 49 out of 77 categories. The null hypothesis was therefore accepted on those 49 categories.

TABLE IV (a)

NAME	CATEGORY***	REG. MEAN	SPEC. MEAN	t	**df	SIG. LEVEL
CONTOUR	1	7.642	5.526	3.560	45	.001 *
DRAWING	2	7.071	4.789	4.583	45	.001 *
	3	6.678	4.666	3.275	45	.002 *
	4	6	4.421	2.520	45	.02 *
	5	5.892	4.631	2.184	45	.03 *
	6	5.857	3.895	3.475	45	.001 *
	7	5.464	3.315	3.013	45	.004 *
VALUE	1	6.8	6.9	.139	23	.89
	2	6.06	6.6	.762	23	.45
	3	5.733	6.3	.695	23	.49
	4	3.4	5.6	2.664	23	.01 *
	5	4.466	4.7	.257	23	.8
	6	5.2	6.7	2.354	23	.03 *
	7	3.8	4.3	.482	23	.63
COMP #1	1	6.461	5.09	1.872	33	.07
	2	5.23	4.454	1.098	33	.28
	3	6.307	4.454	2.636	33	.01 *
	4	5.384	4.590	.985	33	.33
	5	5.538	3.863	2.130	33	.04 *
	6	4.384	3.818	.715	33	.48
	7	4.769	4.045	.877	33	.39

***CATEGORIES DETAILED ON PAGE 53

$$**df = (N_1 + N_2) - 2$$

* >.05

TABLE IV (b)

NAME	** *CATEGORY *	REG. MEAN	SPEC. MEAN	t	**df	SIG. LEVEL
COMP. #2	1	7.833	5.666	2.822	19	.01 *
	2	6.75	6.2	.650	19	.52
	3	7	5.444	1.858	19	.08
	4	6	5.2	.752	19	.46
	5	6.666	5.5	1.553	19	.14
	6	7.25	5.4	3.00	19	.007 *
	7	6.916	5.7	1.889	19	.07 *
COLLAGE	1	7.428	6.384	1.629	25	.12
	2	7.428	5.923	2.342	25	.03 *
	3	7.428	5.076	3.269	25	.003 *
	4	6.571	5.076	2.093	25	.05 *
	5	6.642	4.076	4.964	25	.001 *
	6	7.142	4.461	3.676	25	.001 *
	7	7.214	4.076	4.411	25	.001 *
PERSPECTIVE	1	8.222	6.636	2.159	18	.05 *
	2	7.444	6.090	1.53	18	.14
	3	6.888	6.181	.750	18	.46
	4	6.444	4.818	2.063	18	.05 *
	5	5.333	5.545	.227	18	.82
	6	5.444	5.818	.583	18	.57
	7	6.111	5.454	.653	18	.55

***CATEGORIES DETAILED ON PAGE 53

$$** df = (N_1 + N_2) - 2$$

*
>.05

TABLE IV (c)

NAME	* *CATEGORY	REG. MEAN	SPEC. MEAN	t	**df	SIG. LEVEL
N. + P.	1	7.9	7.6	.647	18	.53
SPACE	2	7.2	6.3	1.923	18	.07
	3	7.2	6.6	.923	18	.37
	4	6.9	6.4	.738	18	.47
	5	7	5.6	2.039	18	.06
	6	6.8	5.8	1.276	18	.22
	7	5.7	6.1	.565	18	.58
PHOTO	1	8.666	7.142	2.185	11	.05 *
REALISM	2	7.5	7.285	.189	11	.85
	3	7.5	7.285	.265	11	.8
	4	7.5	7.714	.209	11	.84
	5	6.666	6.714	.045	11	.97
	6	7.166	7.142	.019	11	.99
	7	6.5	7.428	.869	11	.4
STAINED	1	9.125	7.333	2.335	21	.03 *
GLASS	2	8.25	7.142	1.481	21	.15
WINDOW	3	7.375	6.285	1.321	21	.2
	4	7.375	6.285	1.320	21	.2
	5	7	6.714	.355	21	.73
	6	7	6.857	.206	21	.84
	7	7.125	6.714	.611	21	.55

*** CATEGORIES DETAILED ON PAGE 53

** df = (N₁ + N₂) - 2

*

>.05

TABLE IV (d)

NAME	* *CATEGORY	REG. MEAN	SPEC. MEAN	t	**df	SIG. LEVEL
MIXED	1	7.5	7.75	.557	28	.58
MEDIA	2	7.2	7.05	.438	28	.67
	3	6.9	6.7	.418	28	.68
	4	5.8	6.105	.486	28	.63
	5	6.2	4.2	4.366	28	.001 *
	6	7.1	5.2	4.022	28	.001 *
	7	6.1	4.45	2.700	28	.01 *
PAINTING	1	7.586	7	1.350	49	.18
SERIES	2	7.172	6.363	1.992	49	.05 *
	3	6.758	6.272	1.087	49	.28
	4	5.896	5.636	.524	49	.6
	5	5.275	4.772	1.077	49	.29
	6	5.862	6.045	.449	49	.66
	7	5.137	5.363	.446	49	.66

> .05 28 Categories

< .05 49 Categories

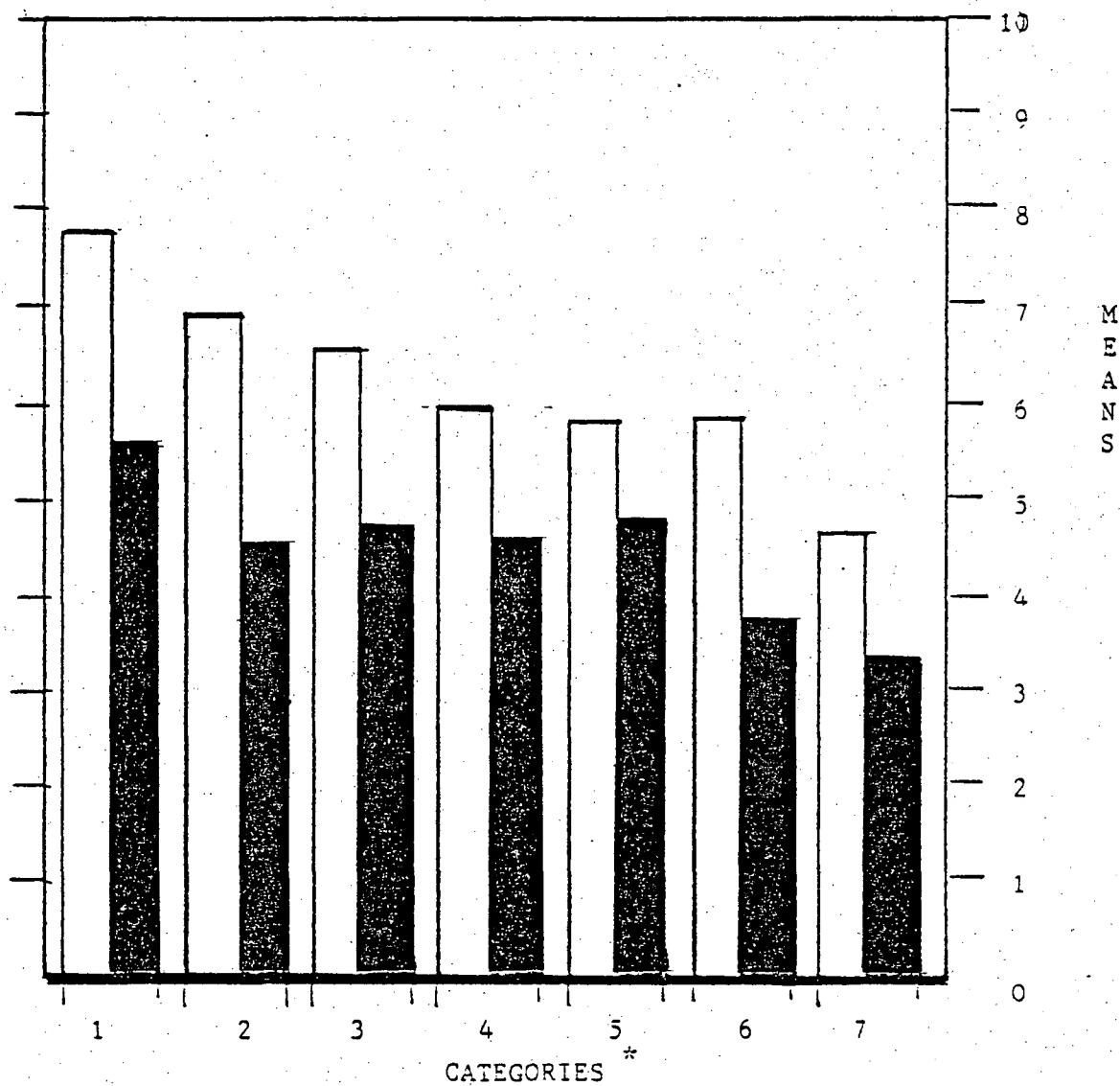
77 TOTAL

*** CATEGORIES DETAILED ON PAGE 53

** df = (N₁ + N₂) - 2

* > .05

FIGURE 4

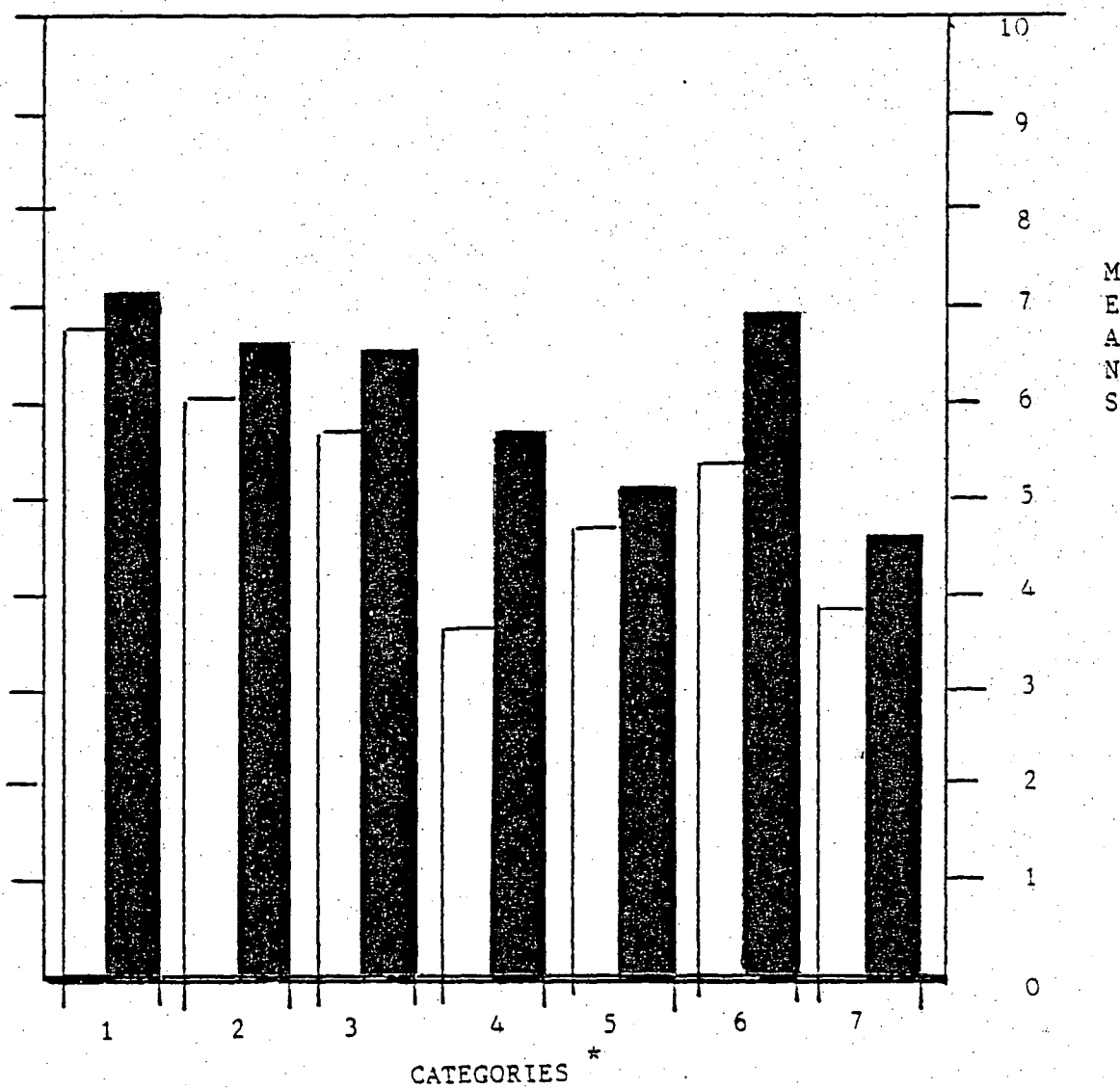
COMPARATIVE MEAN GAINS
CONTOUR DRAWING

Shaded Bars = Special Class

Plain Bars = Regular Class

* Categories detailed on Page 53

FIGURE 5
COMPAARATIVE MEAN GAINS
VALUE

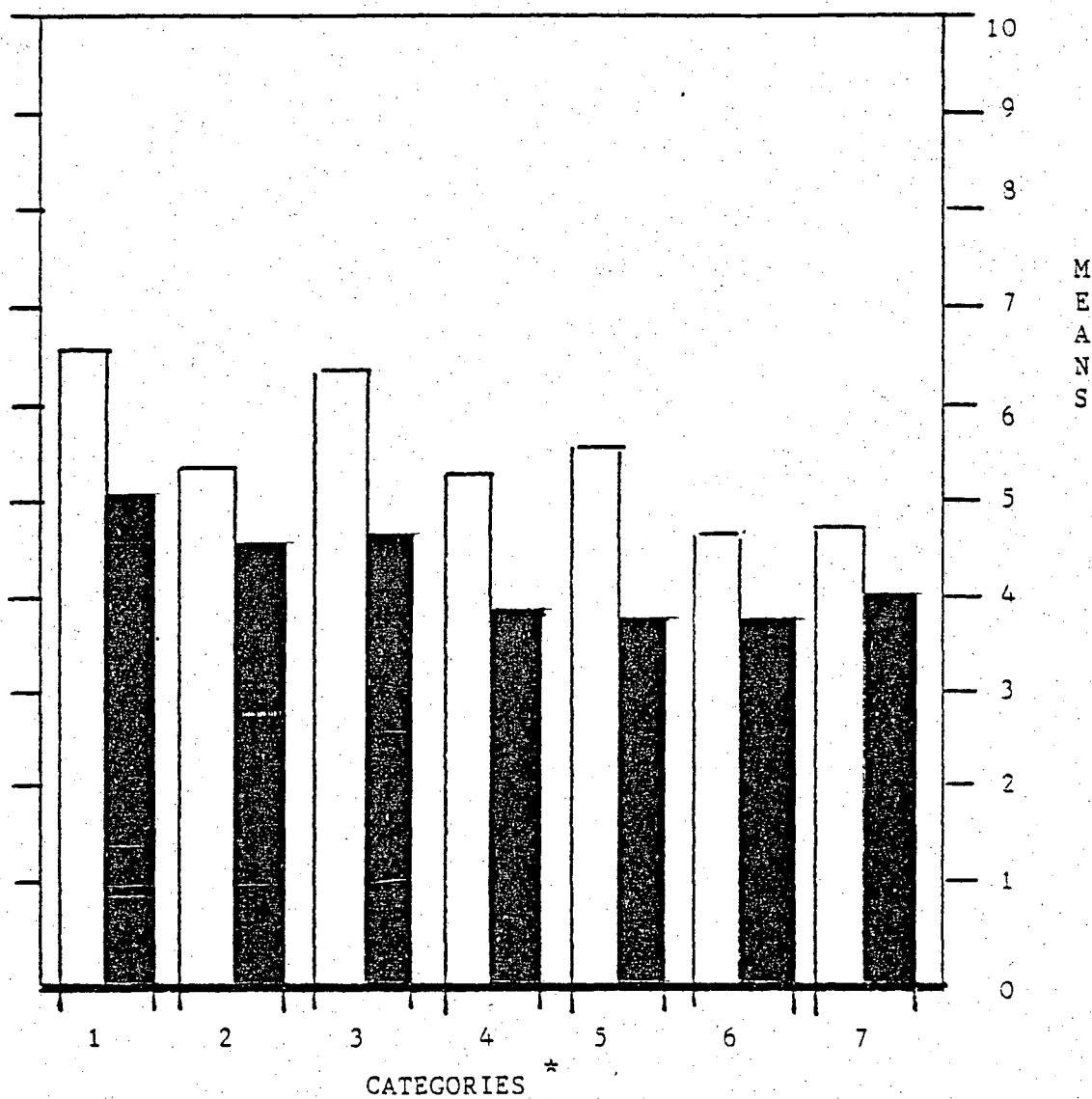


Shaded Bars = Special Class

Plain Bars = Regular Class

* Categories detailed on Page 53

FIGURE 6
COMPARATIVE MEAN GAINS
COMPOSITION #1

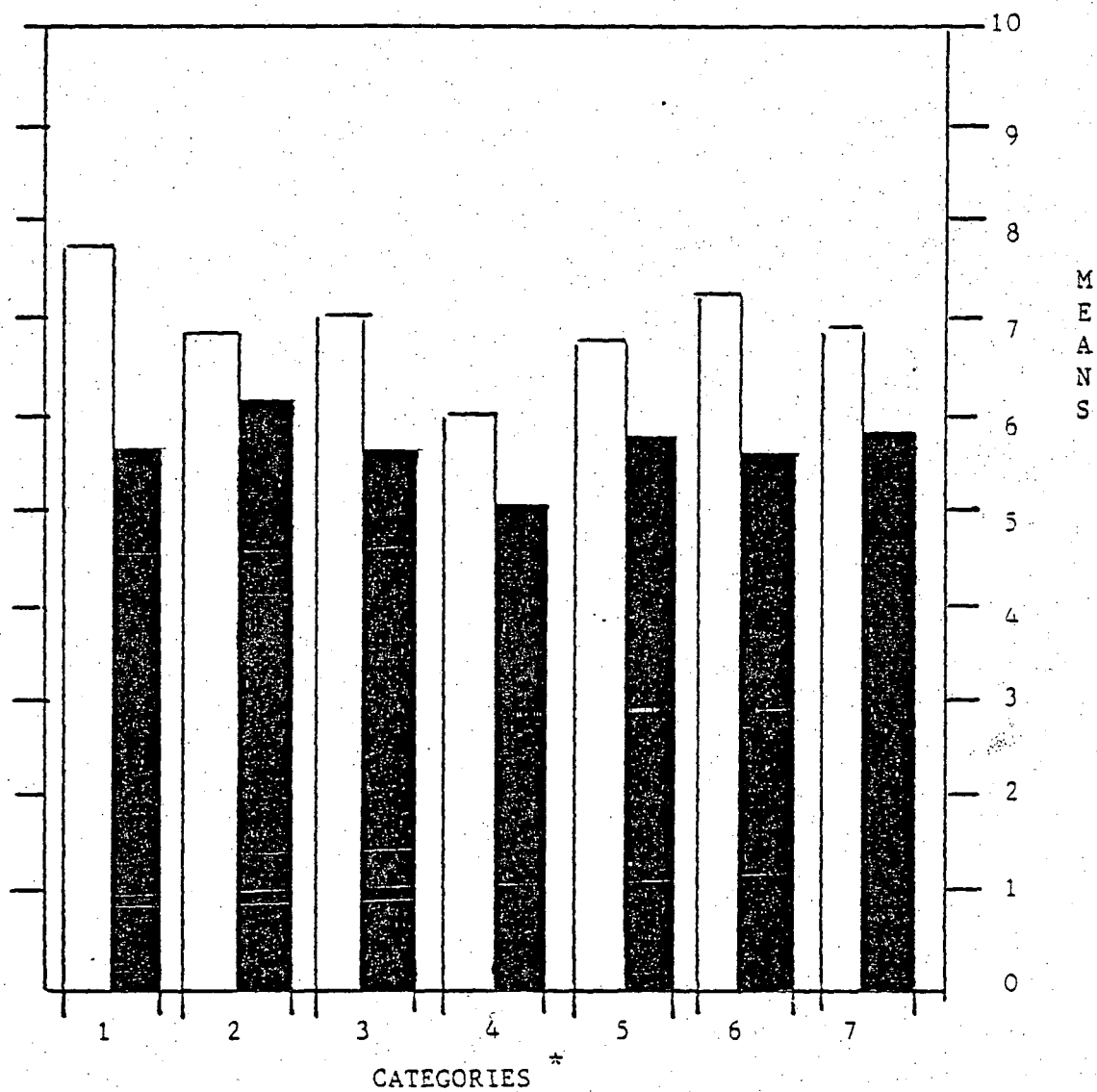


Shaded Bars = Special Class

Plain Bars = Regular Class

* Categories detailed on Page 53

FIGURE 7
COMPARATIVE MEAN GAINS
COMPOSITION #2

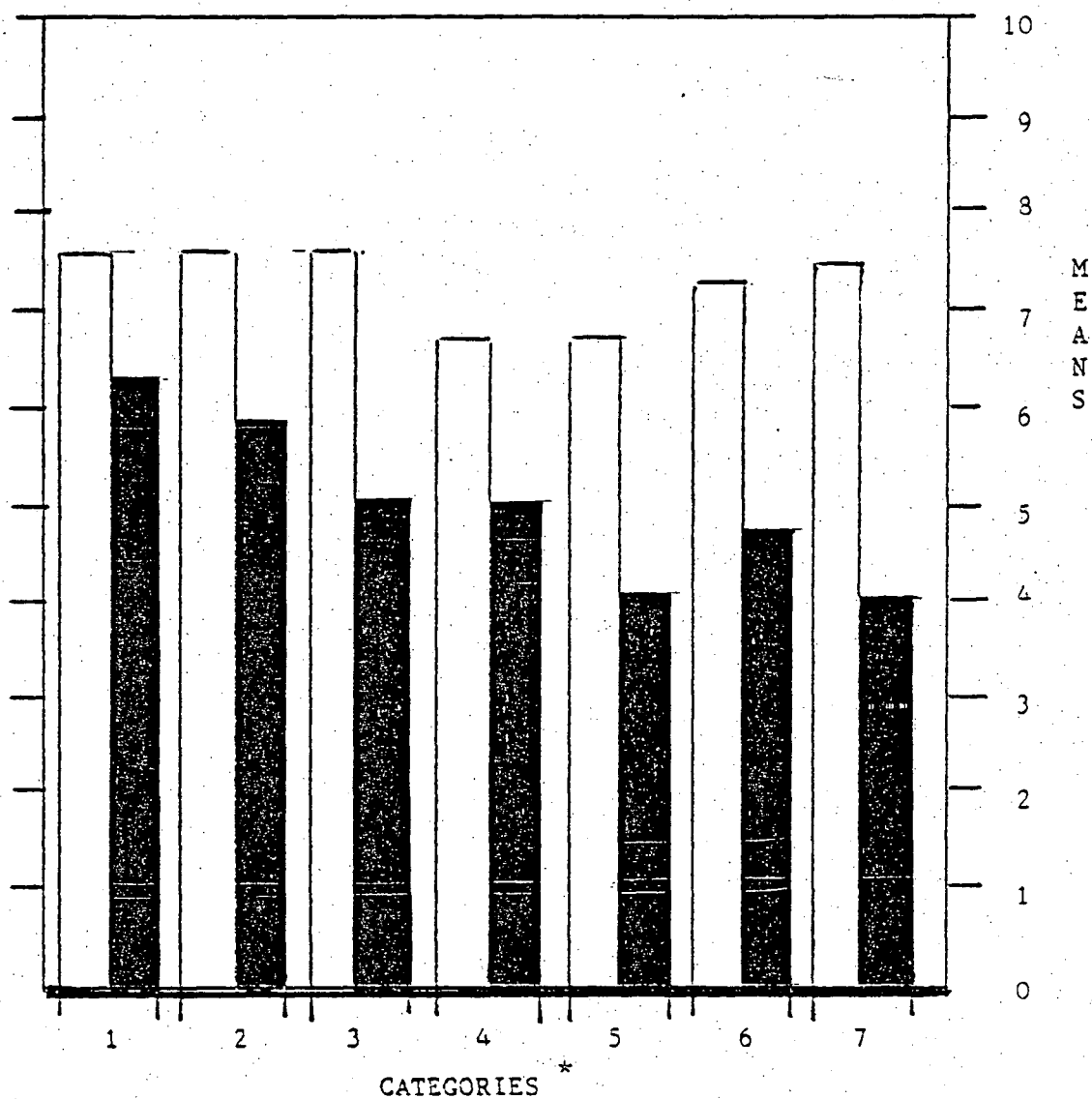


Shaded Bars = Special Class

Plain Bars = Regular Class

* Categories detailed on Page 53

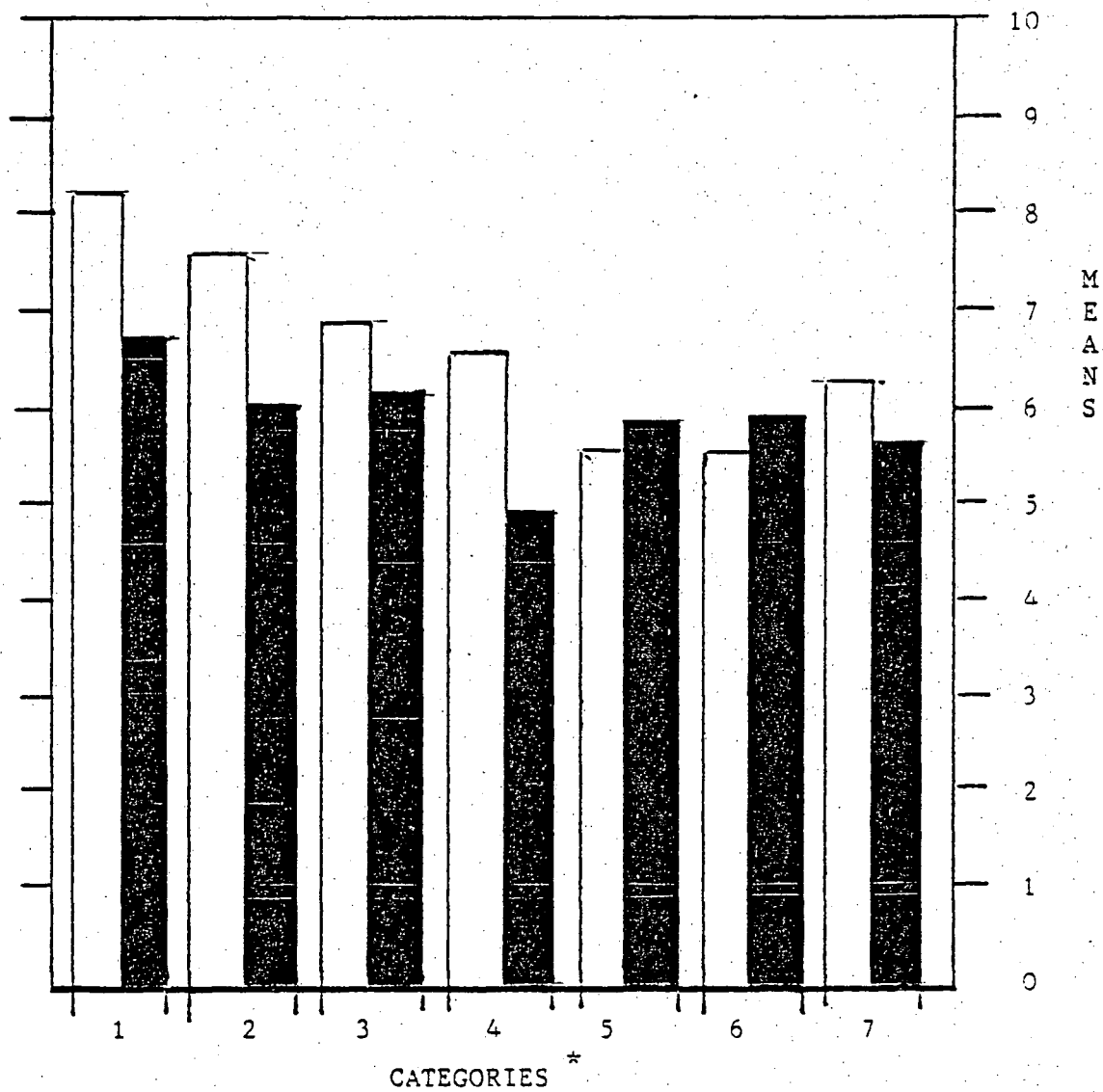
FIGURE 8
COMPARATIVE MEAN GAINS
COLLAGE



Shaded Bars = Special Class
Plain Bars = Regular Class

* Categories detailed on Page 53

FIGURE 9
COMPARATIVE MEAN GAINS
PERSPECTIVE

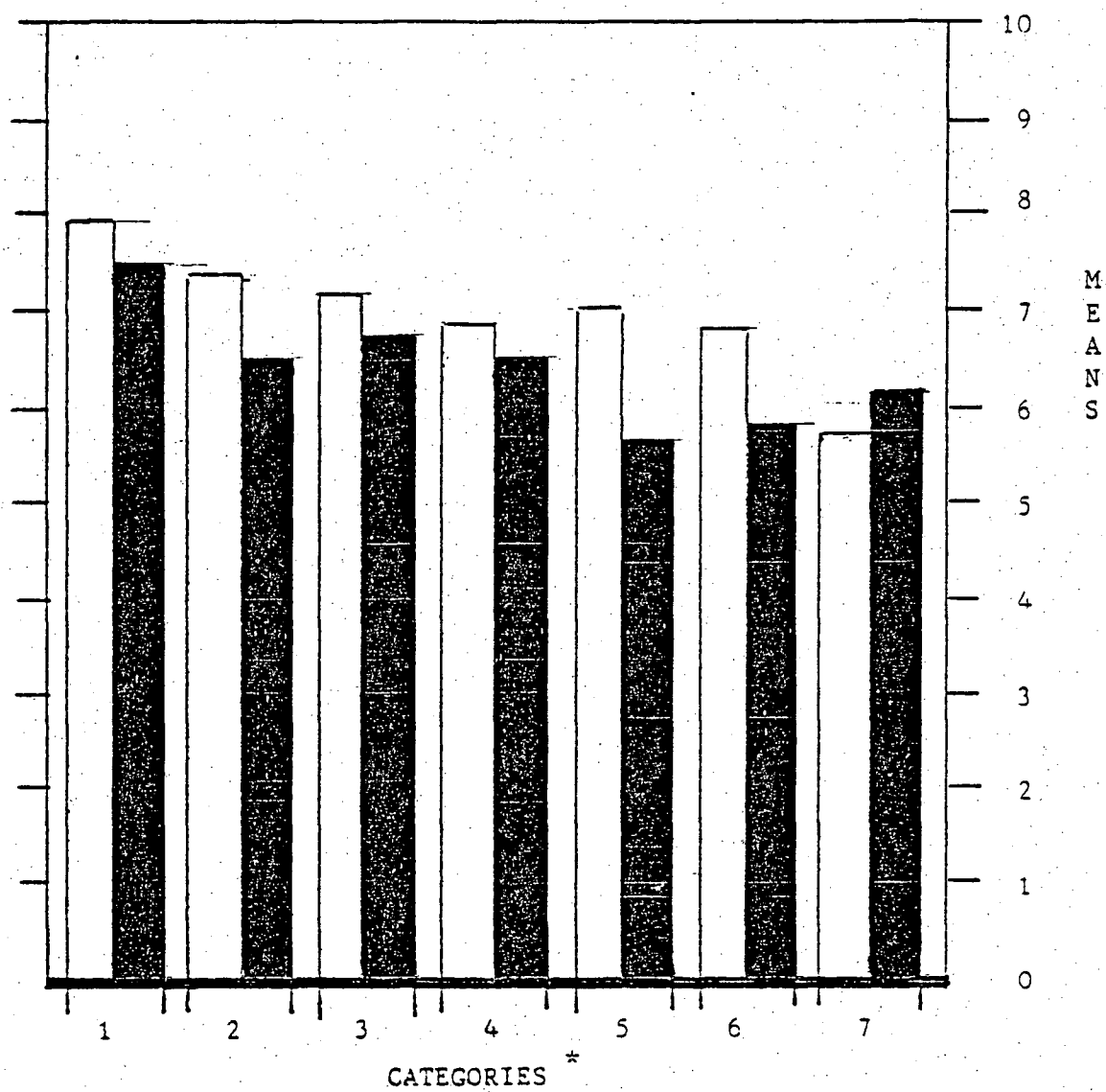


Shaded Bars = Special Class

Plain Bars = Regular Class

* Categories detailed on Page 53

FIGURE 10
COMPARATIVE MEAN GAINS
N & P SPACE

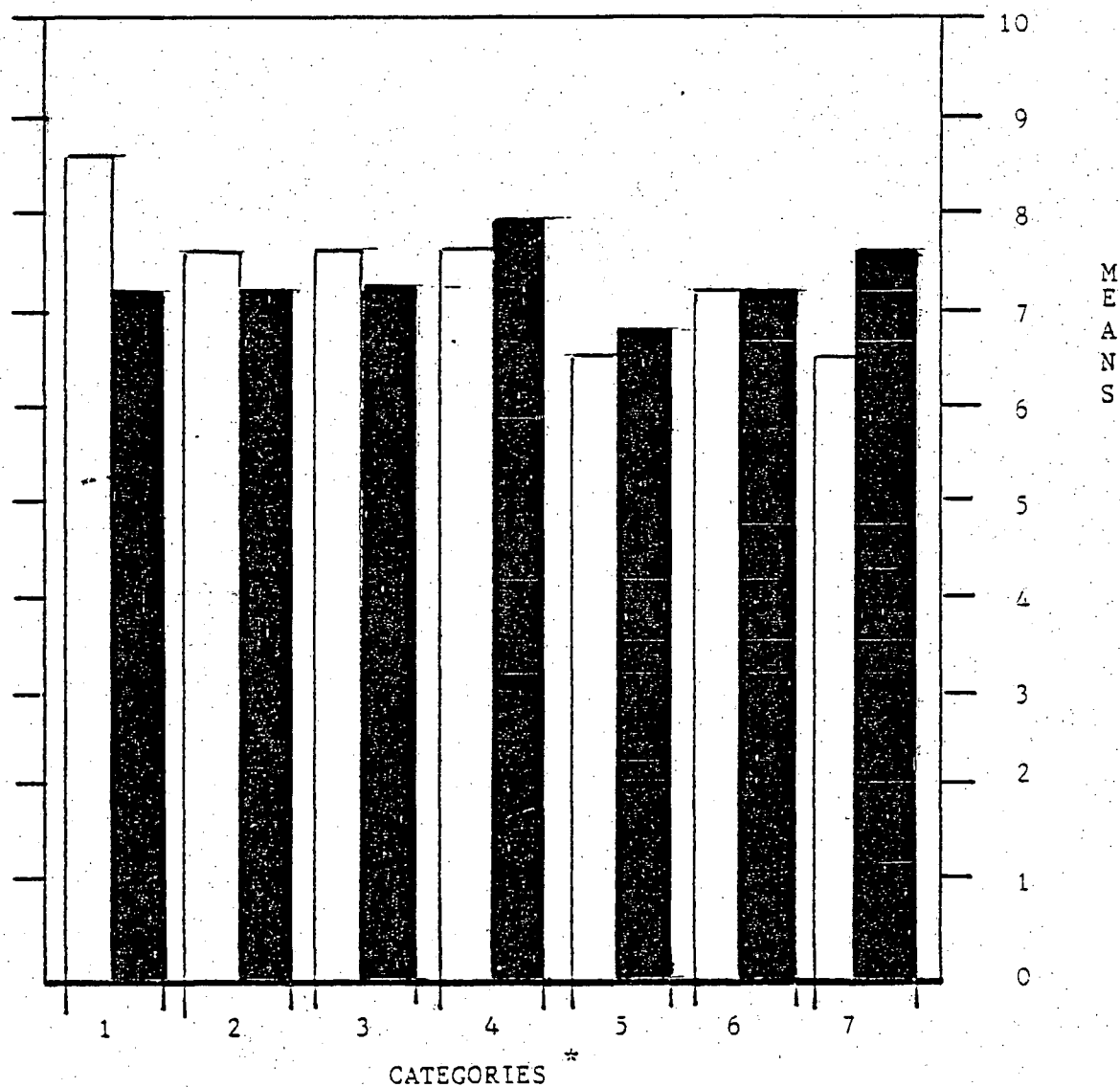


Shaded Bars = Special Class

Plain Bars = Regular Class

* Categories detailed on Page 53

FIGURE 11
COMPARATIVE MEAN GAINS
PHOTO REALISM

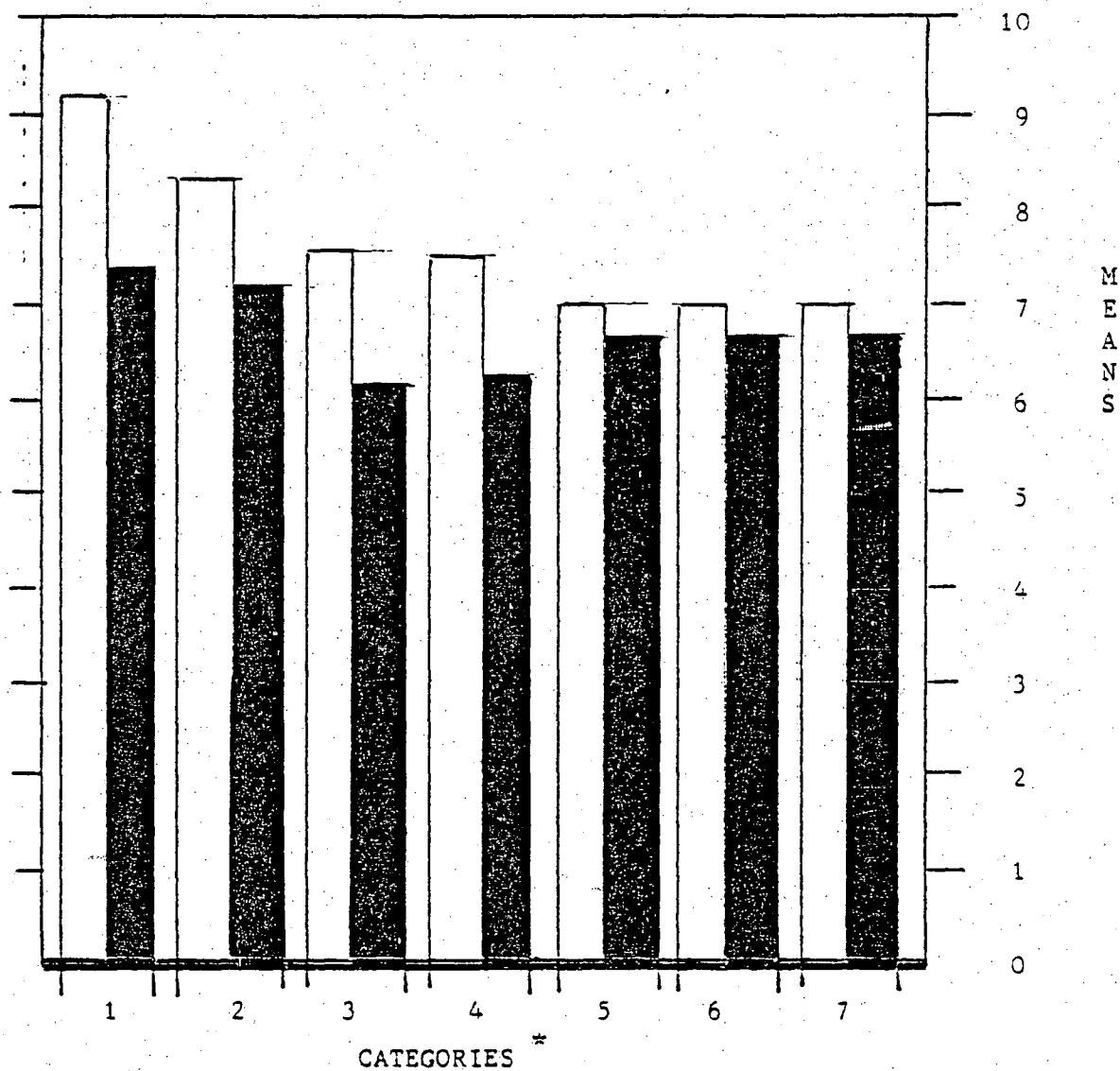


Shaded Bars = Special Class

Plain Bars = Regular Class

* Categories detailed on Page 53

FIGURE 12
COMPARATIVE MEAN GAINS
STAINED GLASS WINDOW

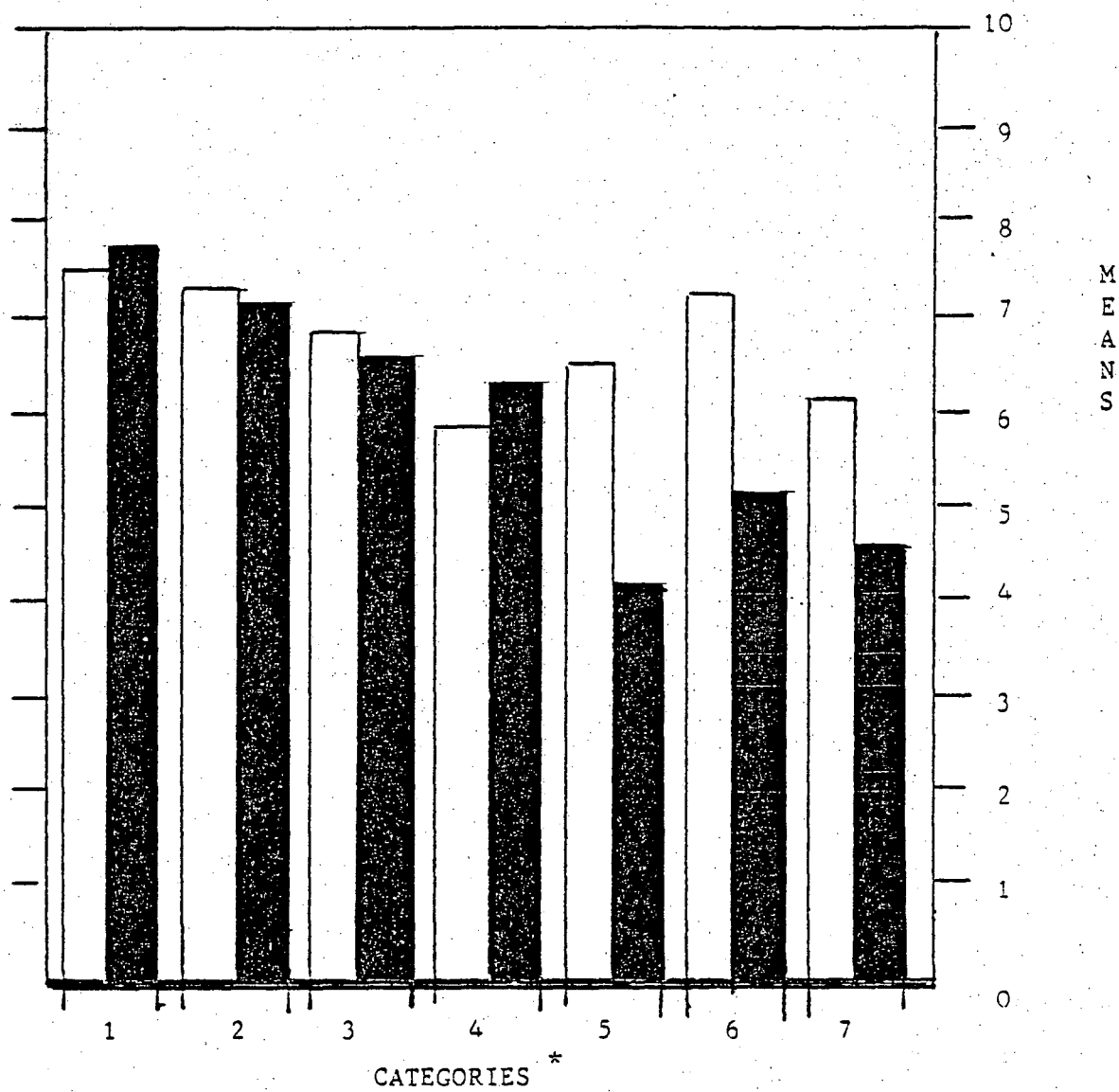


Shaded Bars = Special Class

Plain Bars = Regular Class

* Categories detailed on Page 53

FIGURE 13
COMPARATIVE MEAN GAINS
MIXED MEDIA

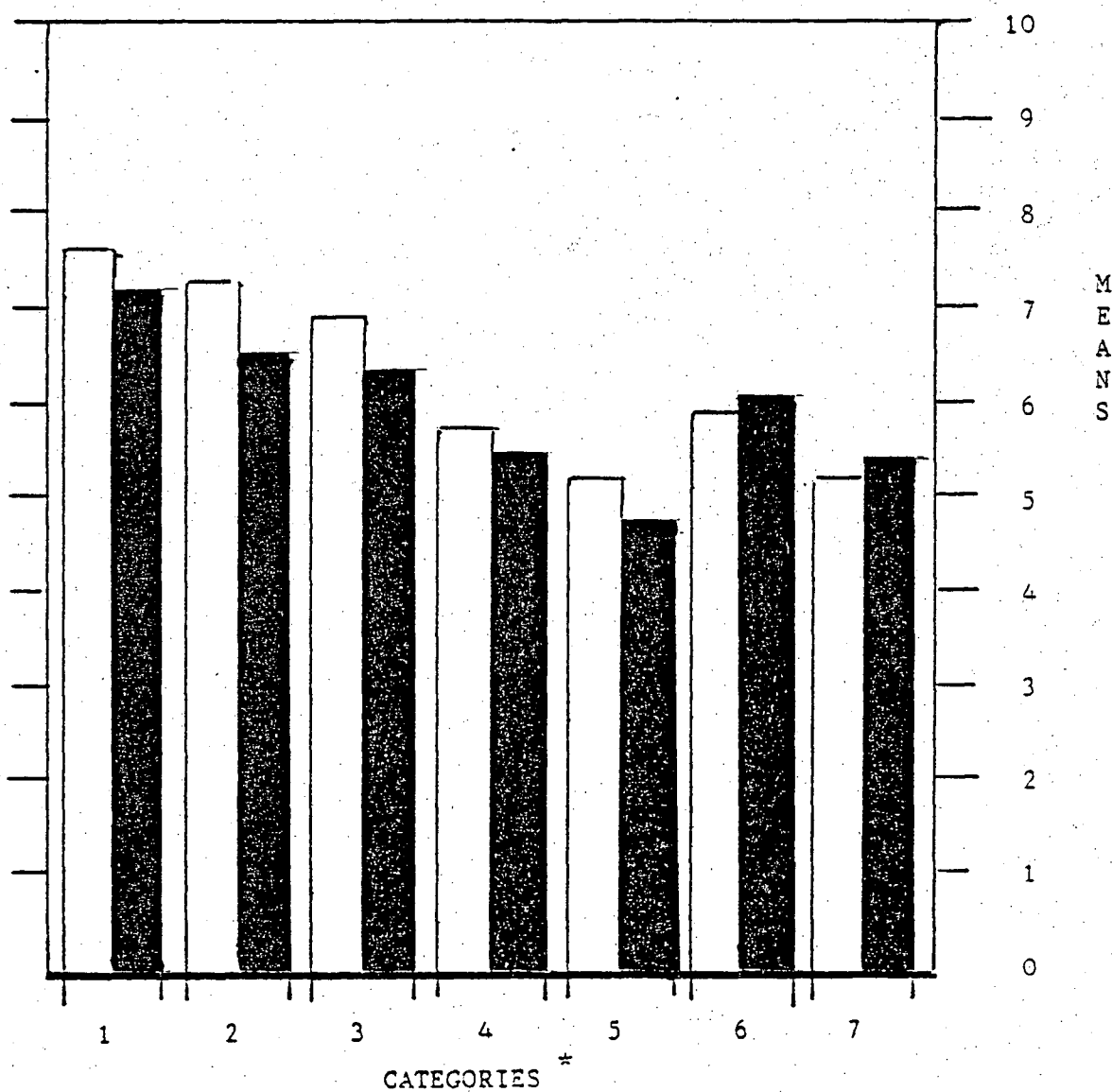


Shaded Bars = Special Class

Plain Bars = Regular Class

* Categories detailed on Page 53

FIGURE 14
COMPARATIVE MEAN GAINS
PAINTING SERIES



Shaded Bars = Special Class

Plain Bars = Regular Class

* Categories detailed on Page 53

Discussion of Programme Adjusted t test Results

The most striking feature from the adjusted t test results is the degree to which the special class performed within the parameters of a regular art programme.

Forty-nine instances (64%) revealed no significant difference in performance between the two test groups. This would suggest that in addition to the E.M.R. Class being able to learn from a regular art programme, the E.M.R. class is capable of response comparable to that of the regular class on more than half the programme content. In fact, the E.M.R. class is capable of superior progress in some instances. Referring to presented bar graphs on comparative mean gains, Figure 5 demonstrates the superior performance of the E.M.R. class on that particular art activity (Value). Conversely, Figures 4,6,7,8,9,10 and 12 demonstrate the superior performance of the regular class on contour drawing, composition #1, composition #2, collage, perspective, N & P space, and stained glass window. Figures 11, 13 and 14 (photo realism, mixed media, painting series) appear for the most part to suggest an equal performance by both groups.

In considering the results of this study, it must be remembered that although both groups were exposed to and experienced the same programme content, the delivery of the programme

to the E.M.R. group was adjusted to meet both group and individual needs. The vary nature of a particular group make-up dictates a particular delivery of content. The language of instruction varies according to need.

As would be expected, vocabulary of E.M.R. students is generally not comparable at the same level to the vocabulary of regular students of the same age group. (James, 1983). Thus adjustments for language deficiencies, when made apparent by student response or lack of response, must be made to effect successful delivery of programme content. For example, where the instructor might refer to the surface to be worked as the whole of the picture plane when addressing a regular class, the same surface might be referred to as all the paper in conjunction with the whole of the picture plane when addressing an E.M.R. class.

In-class prompting is determined by individual class member needs. When confronted with a regular class for the purpose of instruction the instructor will vary his delivery of content according to individual class member needs. For example, the general introduction and lesson delivery to the class as a whole does not represent the totality of content delivery to individuals that make up that class. The minute a student asks for clarification pertaining to lesson content the delivery of lesson content to that particular student becomes different with the addition of further instruction by the instructor. Similarly, differences in delivery to E.M.R. class members will occur in a classroom teaching situation. Since the range

of abilities between individual class members from the E.M.R. group generally encompasses a span that is greater than that found in a regular class, delivery to the E.M.R. may have a greater variety from individual to individual within the group. Similarly the range of abilities between individuals from the E.M.R. group and the regular class group is greater still, thus variety in delivery between groups is commensurately greater.

Teacher-class rapport can have a direct influence on student response to lesson content and its delivery. This is true for the regular class learning environment and is of paramount importance when dealing with classroom procedures and the E.M.R. (James, 1983).

CHAPTER VI

SUMMARY AND IMPLICATIONS OF THE STUDYSummary of Procedures and Major Findings

This study was designed to investigate the premise that E.M.R. students can learn within the confines of a regular introductory art programme. In order to verify or discount the proposition that E.M.R. learning will take place within a chosen regular art programme, it was necessary to involve as a criterion group a regular art class, for whom the programme is normally intended.

The programme was conducted over a six month period in a district high school. Both groups, E.M.R. and regular, were exposed to identical lesson content under normal classroom conditions. That is to say, lessons were presented and adequate follow-up time was provided for completion of assigned problems. A total of fifteen problems was assigned. The first two and the last two problems, being identical, served as pre-tests and post-tests.

A total of 446 student art works was generated from the given programme. Since the setting for the study was to be under normal classroom conditions, and it is standard practice to allow students more than one solution to a particular problem, more than fifteen works per student from each group resulted. Conversely, some students were not represented in some lessons and follow-up art activities due to absence from school over the six month duration of the study.

Resultant student art works were randomized to form three separate collections, one for each of three judges. These were scored on a one to ten basis, using score cards comprised of seven categories or variables. The scores were used as data for entry to selected computer programmes to determine significant differences as follows;

- A. between pre-test and post-test for E.M.R.
- B. between pre-test and post-test for regular class
- C. between E.M.R. and regular class on programme
(i.e. interim lesson) performance.

The findings on pre/post-test analysis indicated that, under normal conditions, both the E.M.R. student and the regular student will learn within the confines of a regular art programme. The probability on all seven categories for both groups was .001; thus the null hypotheses (H_{0A} , H_{0B}) were rejected.

On programme performance, findings indicated that there were significant differences at the .05 level between groups on 28 out of 77 categories. However, on the remaining 49 categories there were no significant differences at the .05 level. That means performance by E.M.R.s was comparable to that of the regular class in better than 60% of programme content.

There is however, a danger in interpreting and applying the findings of this study. Current movements to assure the handicapped and the disabled youth their full place in society (Ccollins, 1984), including a place in the public school system, (Hunter, 1981) have given rise to the idea that

all but the most severely handicapped students should be integrated into the regular school system (Mackie, 1983). This is not necessarily the case. Sixty percent still falls far short of the figure that might indicate parity in terms of learning ability.

Conclusions drawn from obtained statistical data are based solely on the relationship of the two groups tested in this study, with reference only to some aspects of art education. Any study that incorporates a group or number of groups of individuals and attempts to draw conclusions based on group results is essentially limited, since it discounts individual differences of members who comprise the group. A different make-up of groups could result in different results and related conclusions. For example, the E.M.R. test group used in this study was comprised of members whose I.Q. range varied some 22 score points between individuals. Would the results of an identical procedure yield the same conclusions if the I.Q. range varied more or less than 22 score points?

Although limitations appear to be numerous, the implications of this study are also significant validation of Gold's assertion that

The height of a retarded person's level of functioning is determined by the availability of training technology and the amount of resources society is willing to allocate and not by significant limitation in biological potential.

(Gold, 1971, p.1)

For the most part, students live up to the expectations of their teachers. This study has indicated that some degree of normalization is possible within a regular art programme. Special limited

art programmes do not offer the only alternative for the education of the E.M.R. within the confines of the public school, and other possibilities are worth exploring.

The results suggest that E.M.R. students can perform on an adequate level compared to the norm, on most assigned art tasks. The short term increment in learning seemed to be comparable for E.M.R. students and regular students. But long term increments seemed to be less the norm for the E.M.R. groups, as evidenced by comparative post-test results. The graphs (Figures 2 and 3) show real differences in progress between groups from pre-test to post-test. Although long term memory appears to be at a comparatively low level among E.M.R.s, the evidence implies that its presence is sufficient to warrant some degree of success in learning through art activity. The E.M.R. scores, higher than scores from the regular group in pre-test results, possibly due to previous art activity undertaken by many members of the E.M.R. class, would seem to support the positive effect of learning through art.

The concept of "integration" of E.M.R. students into the regular mainstream of the public school must be carefully considered. Further research into this very important aspect of public education must be the basis for any new programme development. The comparative rate of learning for E.M.R. students appears to justify differences in delivery of regular class lesson content to E.M.R.s. However, the difference need only be in delivery, not in content.

Adjustment in delivery may be necessary in order for programme content to be fully understood by E.M.R. students.

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APPENDIX A (1)

Art activities and related time line incorporated
in this study for both groups.

Pre-testing

- Sept. 19 drawing of given objects
- Sept. 21 black & white portrait painting

Programme

Contour Drawing

- Sept 23. intro. contour drawing

N & P Space

- Sept 27 intro. negative & positive space
- Sept. 28 sketch book assignment (still life drawing)
- Sept. 29 refine still life drawing and break up
into black and white shapes.
- Oct. 5 transfer still life compositions to black
construction paper and cut away white areas.
Mount completed cutting on white card.

Perspective

- Oct. 10 intro. linear perspective. Execute the drawing
of nine blocks with two vanishing points.
- Oct. 18 application of colour and various embellishments
to perspective drawing using idea of landscape.

Value

- Oct. 20 intro. balance. Execute free poster on
Halloween Theme.
- Oct. 25 intro. "Tone" (Value) shading light to dark.
- Nov. 2 execute the accurate interpretation of
given tone modulation.

Photo Realism

Nov. 17 photo realism (graphing and tone modulation)

Stained Glass

Dec. 6. review balance and negative & positive
space. Execute stained glass window composition.
(Christmas Theme)

Composition #1

Jan 3. intro. Closure and Overlapping in
combination with simplification in Abstraction.

Jan 5. break up a given object "Guitar" into simple
geometric shapes and create a balanced
composition (line drawing)

Composition #2

Jan 9. apply tone to guitar composition
(tempera on card)

Composition #3

Jan 23. intro mixed media concept re-interpret
guitar composition using drawing, painting, and
collage.

Painting Series

Feb. 7 intro colour chart and mixing including tints
and tones.

exercises on colour (paint) mixing

Feb. 15. execute given painting series.

Post-testing

drawing of given objects

Black & white portrait painting

APPENDIX A(2)

Summaries of Presentations to both Groups

1. Contour Drawing: Students were asked: What is a line? Can you point out a line to me? Can you go and bring me a basketful of lines? These questions with related answers and discussion concluded with the fact that a line is a man made thing, it is a concept, and it becomes evident at the edge of a surface.

Examples of line drawings executed by a range of artists were presented for viewing and discussion. (slides)

Students were next asked to carefully look at their hand and note the lines within and around. Contour, boundaries around surfaces were sought. A number of attempts were made at drawing the hands on paper without looking at the paper; rather, the eyes never left the hand, thus resulting in a continuous line drawing.

Following these exercises, students were asked to draw a "figure in a setting". Only lines were to be used. It was suggested they draw the person (and surrounding space) sitting opposite them. Material was 2B pencil on 18" X 24" cartridge paper.

2. N & P Space

Following an introduction to negative and positive space, students were asked to execute a line drawing of a presented still life in their sketchbook. Once complete the drawing was reworked in such a way as to produce a composition with wholly enclosed shapes. These shapes were then designated as either white or black.

It soon became apparent that black which is most often used as the positive can be interchanged with white, usually left as background space (negative).

When students were satisfied with their sketchbook studies the drawing was transferred (re-drawn) to black construction paper and the designated white shapes were cut out with an exacto knife. The final cutting was mounted on white Bristol board, producing a black and white composition of the original still life (18" X 24").

3. PERSPECTIVE

An introduction to linear perspective through the eyes of artists was provided by way of a slide presentation. Presented works varied from Perugino, 1482 "Christ Delivering the Keys to St. Peter" to contemporary architectural rendering.

The principle of linear perspective was made apparent by way of discussion and related demonstration. Students were next to practise exercises. (drawing successive cubes with two vanishing points in sketch book).

Following these exercises, the problem was posed. Three levels of nine boxes (or buildings) are seen as nine squares from the top. Draw how they would appear from the front, using two vanishing points. Cardboard boxes were available for students to set up the suggested scene.

Upon completion of drawing students were asked to set the twenty-seven boxes in a landscape setting and add colour.

4. VALUE

Students were introduced to the concept of balance within a composition. Selected works of art were viewed in a slide presentation. Various forms of balance were pointed out and discussed. Students were asked to execute a balanced composition following a given theme. The choice of medium was left to individuals.

The completed compositions were then looked at by the class and the results were discussed. The idea of "shading" came up in discussion.

Thus Tone (Value) became an area for consideration.

Following the presentation and related discussion of works of art with reference to value in the composition, students were asked to execute the accurate interpretation of given tone modulation. Small sections of black & white magazine pictures were cut and used as points of departure for student work.

5. Photo Realism

Students were introduced to High Realism in Canada. Contemporary Canadian artists working in the high realism manner were the point of departure for this presentation.

To assure some measure of success in realism students were introduced to graphing of given images.

Black and White photographs or magazine pictures served as the point of departure for student art works. Completed works were 16" X 16" pencil (2H,2B,HB) drawings on Moyers drawing white.

6. Stained Glass

Following a review of balance within a composition and negative and positive space students were asked to create a balanced composition using a Christmas theme. Shapes were to be designated as black or white. The work was done in student sketch books. Christmas cards served as points of departure for student works.

When sketch book work was completed, the composition was transferred to black construction paper and white spaces were cut out using an exacto knife. The now blank spaces were filled in using coloured tissue paper sheets. The resultant works were displayed against a window to allow light to pass through the tissue paper and thus take on the appearance of stained glass.

7. Composition #1

The concept of Abstraction was introduced to students by way of simplification. Various examples of abstract work (representational abstraction) were presented in slide form for viewing and discussion. Discussion of presented works made evident closure and overlapping in those works. Thus simplification, closure, and overlapping became areas of concern for students in their work.

Students were presented with a number of guitars to serve as points of departure for their work. They were asked to create a balanced composition of "Guitar" using simple geometric shapes. Only lines were to be used.

8. Composition #2

Students were asked to transfer the results from comp #1 to a 8" X 15" card. Using tempera paint, students were instructed

to apply tone to the composition and to be aware of balance. The completed work was to be monochrome.

9. Composition #3

The technique of collage in image making was introduced to students through the study of slide presentations of Cubist and Surrealist works.

Students were instructed to re-interpret the guitar composition from Comp #1 and #2 on an 8" X 15" card, using the collage technique. A variety of magazine pictures was available to students to cut up and paste on.

10. Mixed Media (comp #4)

The idea of mixing various materials on a surface to create an image was discussed. A variety of sample art works incorporating mixed media was presented by way of slides. Works from Dada, Surrealism, and American Abstract Expressionism, were viewed.

Following this presentation and related discussion students were instructed to re-interpret the previous guitar composition (#1,#2,and #3) using drawing, painting, and collage.

11. Painting Series

The colour chart (or wheel) as described by Itten was the basis for introduction to colour theory (Itten, 1970).

Following a basic introduction to colour, students were set tasks of colour mixing. These exercises served as reinforcements to presented information. Colour mixing included secondary and tertiary colours as well as tints and tones.

Students were next instructed to create a balanced composition (line drawing) in their sketch book. This composition was to be transferred to three separate cards 8" X 10". The resultant cards were to be completed with colour. Liquid tempera paint was used. A particular colour mode was to be used for each of the three compositions. eg: Triad harmony, complementary harmony, tints and tone etc.

APPENDIX B

Computer Programme for Chi Square
for TI-99/4A computer

(Inter-judge reliability)

```
100 DIM V(3,10)
110 CALL CLEAR
120 FOR I = 1 TO 3
130 PRINT "ENTER DATA FOR JUDGE";I::
140 FOR J = 1 TO 10
150 INPUT V(I,J)
160 V(I,0) = V(I,0)+V(I,J)
170 V(0,J) =V(0,J) + V(I,J)
180 V(0,0) = V(0,0) + V(I,J)
190 NEXT J
200 NEXT I
210 FOR I = 1 TO 3
220 FOR J = 1 to 10
230 E = V(I,0) * V(0,J)/V(0,0)
240 IF E = 0 THEN 270
250 A = V(I,J)- E
260 T = T+A*A/E
270 NEXT J
280 NEXT I
290 PRINT "CHI SQUARE IS";T
```

APPENDIX C

Computer Programme for t test
(non-normal)
for TI-99/4A computer

```
100 INPUT "FIRST MEAN ":M1
110 INPUT "SECOND MEAN":M2
120 INPUT FIRST VARIANCE":V1
130 INPUT "SECOND VARIANCE":V2
132 INPUT "FIRST NUMBER":N1
134 INPUT "SECOND NUMBER":N2
140 PRINT :::
150 T = ABS(M1-M2)/SQR(V1/(N-1)+V2/(2-1))
160 PRINT "T VALUE IS";T
170 IF V1 V2 THEN 200
180 F = V1/V2
190 GOTO 210
200 F= V2/V1
210 PRINT "F RATIO IS";F
```

APPENDIX D (1)

A SAMPLING OF REPRODUCTIONS OF STUDENTS' WORKS

FROM THE E.M.R. CLASS

RESULTING FROM THIS STUDY

Black & White Portrait Painting



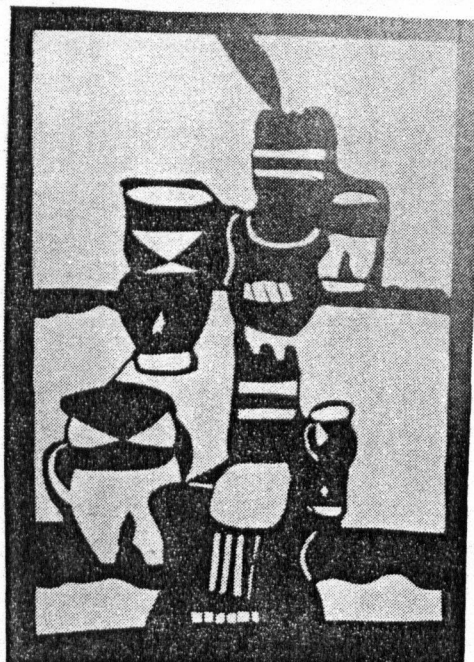
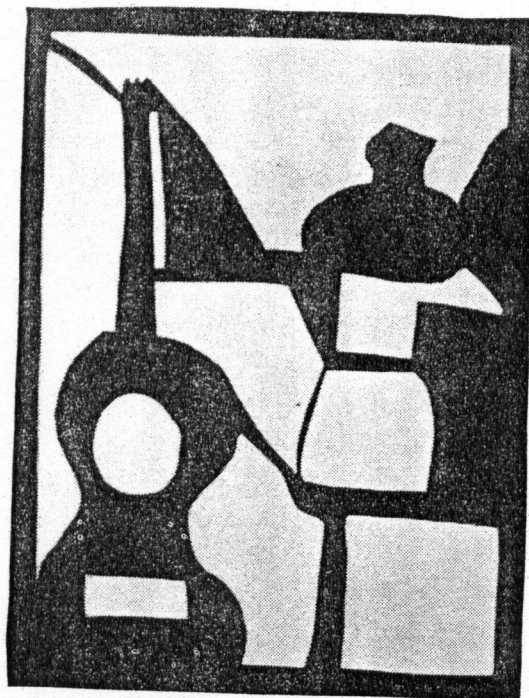
Negative & Positive Space



Photo-realism



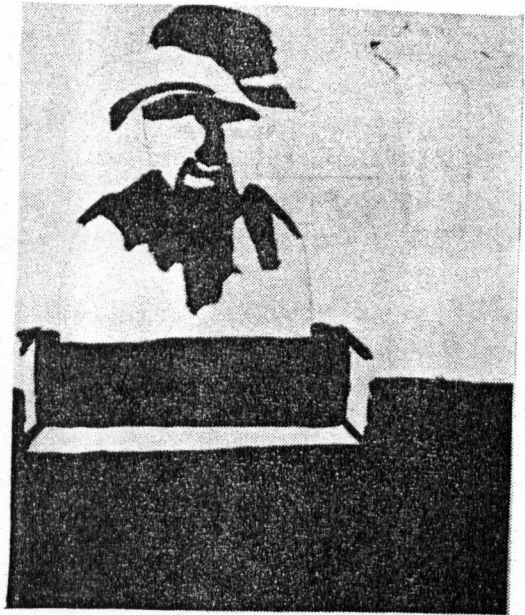
Negative & Positive Space
(Construction Paper on Card)



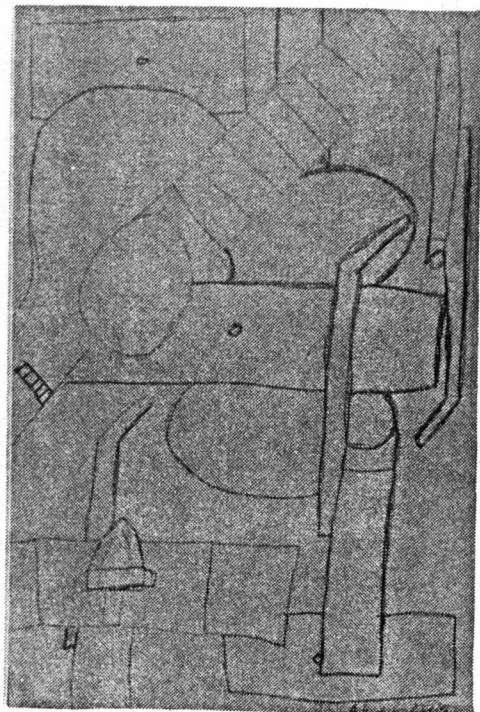
Painting
Series



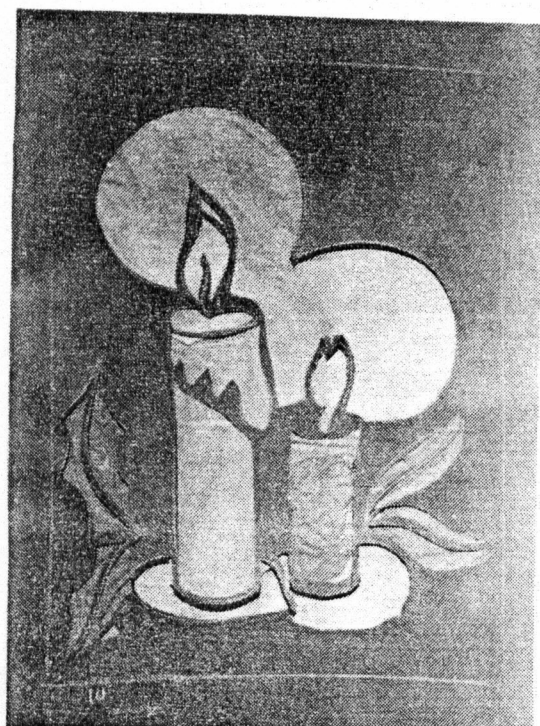
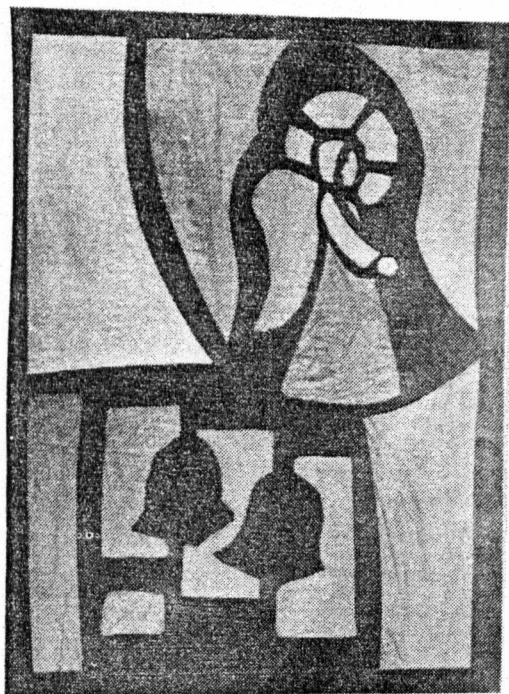
Black & White Portrait



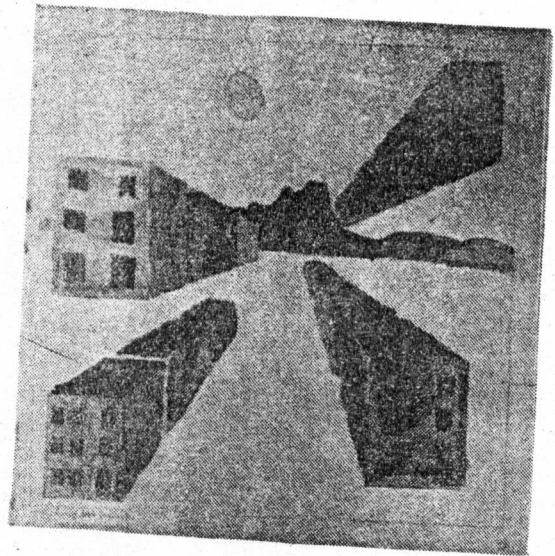
Composition #1



Stained Glass



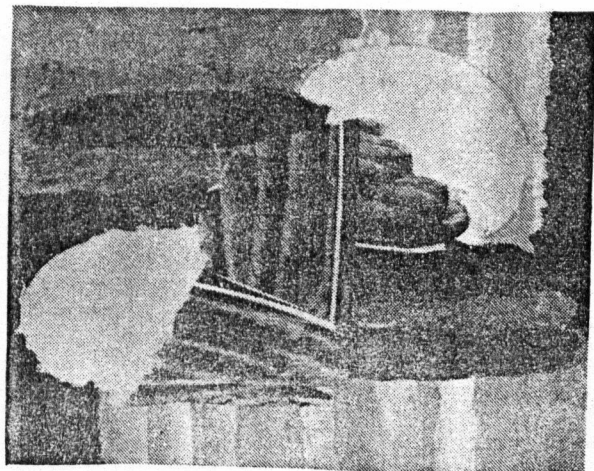
Perspective



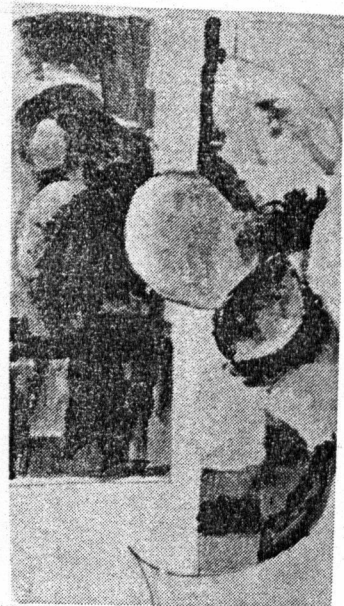
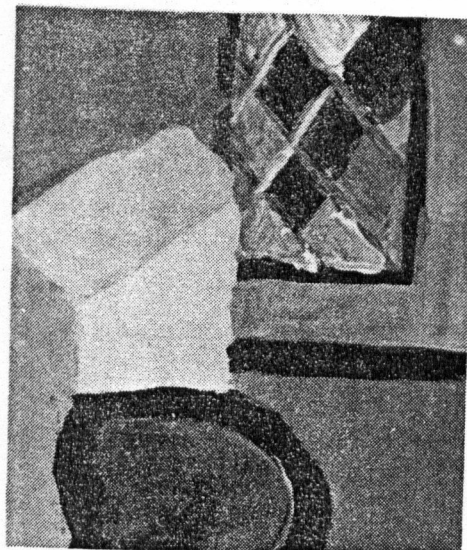
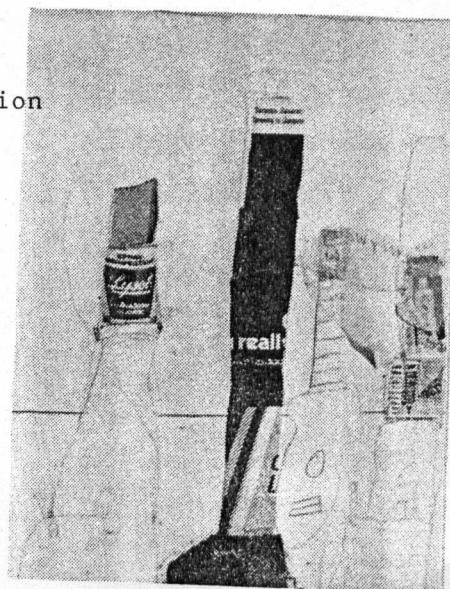
Value



Composition #3



Composition #2

Composition
#4
ValueComposition
#3

APPENDIX D (2)

A SAMPLING OF REPRODUCTIONS OF STUDENTS' WORKS

FROM THE REGULAR CLASS

RESULTING FROM THIS STUDY

Black & White Portrait
Painting



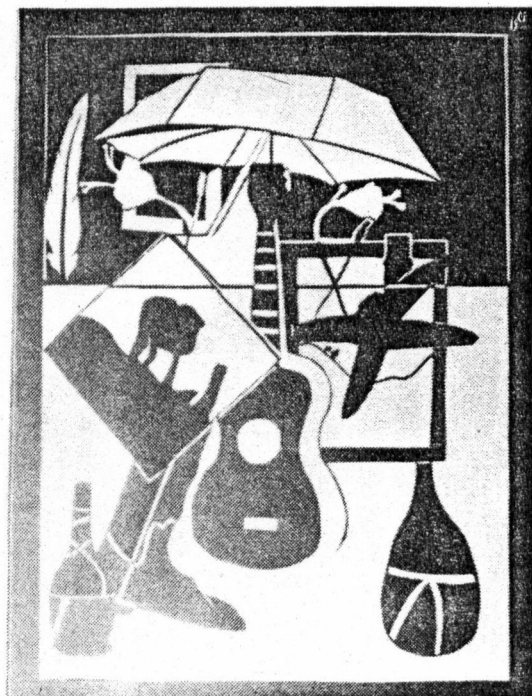
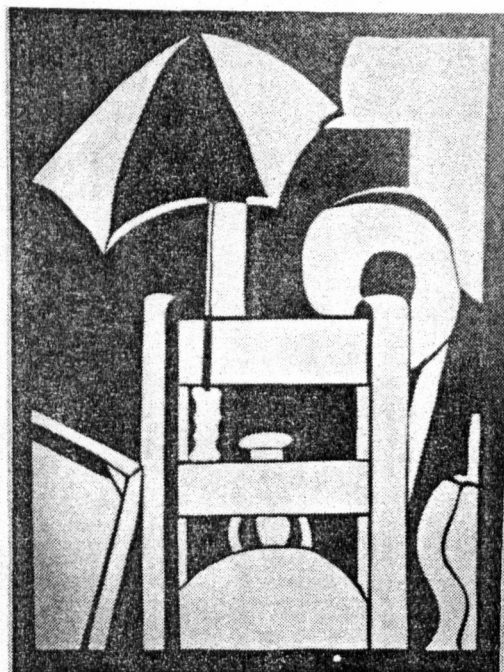
Negative & Positive Space
(Tempera on card)



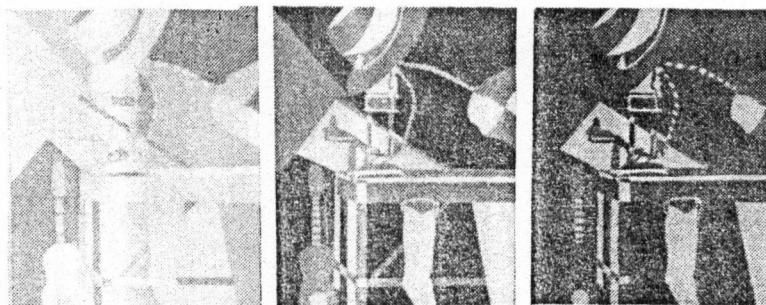
Photo-realism



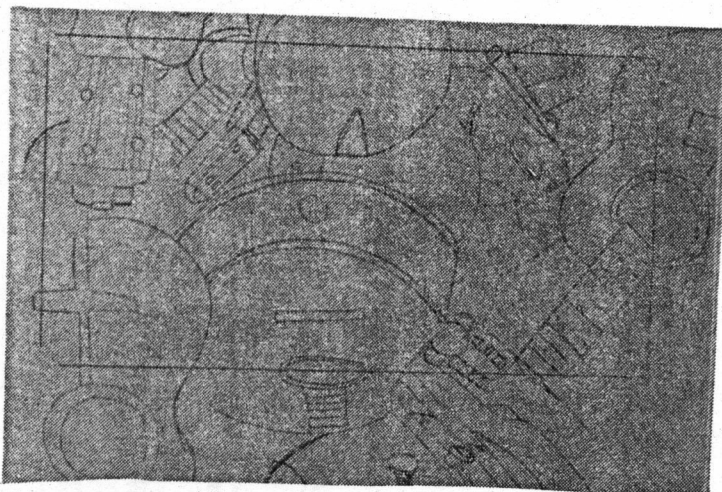
Negative & Positive Space
(Construction Paper on Card)



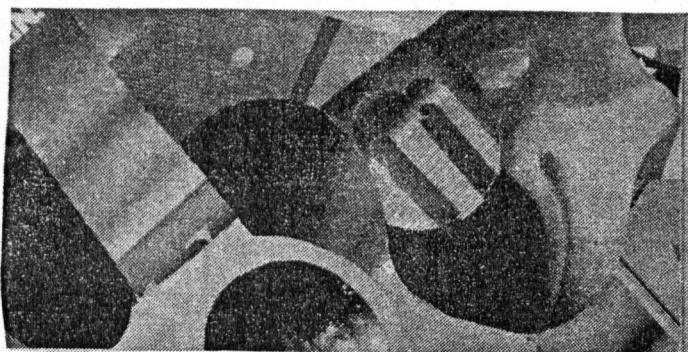
Painting Series



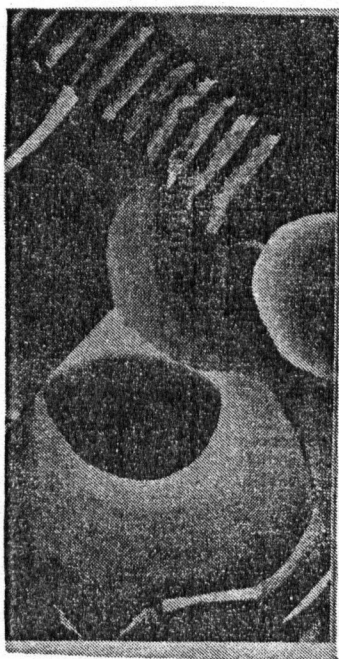
Composition # 1



Composition #3



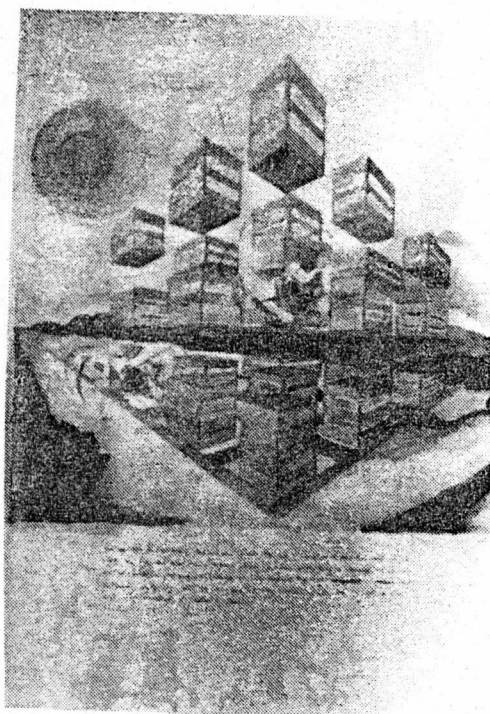
Composition #2



Stained Glass



Perspective

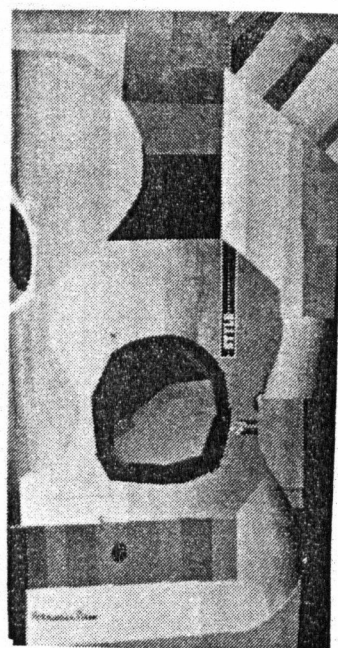
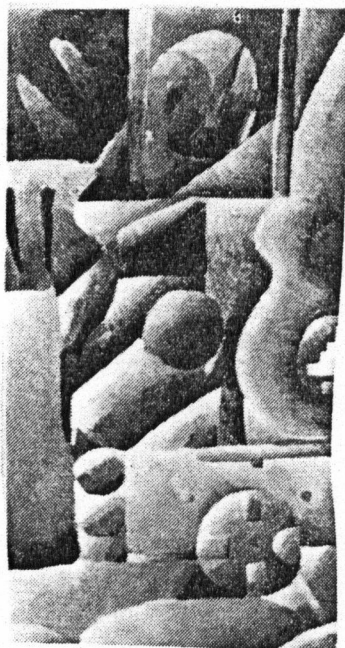


Value

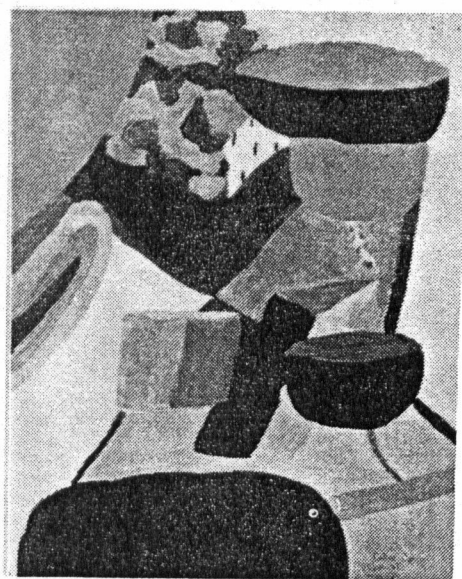


Composition #2

Composition #3



Value



Composition #4



APPENDIX E

Fine Arts

Art

Art

A. The student recognizes basic elements in art.

LEVELS

	P	I	J	S
• recognizes a variety of types and uses of lines in art	0 x	0 x	0	
• identifies colours and colour qualities (e.g. hue, intensity and mixtures)	0 x	0 x	0	
• demonstrates an awareness of the textures of objects and materials	0 x	0 x	0 x	0 x
• shows an awareness of space in art	0 x	0 x	0 x	0 x

B. The student participates actively in art experiences.

• cuts or tears paper to make shapes and designs	0 x	0 x	0 x	
• pastes material to form a collage	0 x	0 x	0 x	
• draws simple, recognizable forms	0 x	0 x	0 x	0 x
• uses modelling materials (e.g. clay, papier-mâché) to form art objects	0 x	0 x	0 x	0 x
• constructs craft items using a variety of materials and modes	0 x	0 x	0 x	0 x
• employs various art materials and techniques in self-expression	0	0 x	0 x	0 x
• uses art tools and materials appropriately and safely		0 x	0 x	0 x
• shows independence and responsibility in dealing with materials, workspace, and art products		0 x	0 x	0 x
• demonstrates knowledge of art galleries and museums			0 x	0 x

C. The student forms opinions about art.

• identifies different forms of art expression		0 x	0 x	0 x
• demonstrates an appreciation for a variety of art forms		0 x	0 x	0 x
• recognizes basic art techniques		0 x	0 x	0 x
• evaluates own art work	0 x	0 x	0 x	0 x
• expresses and explains personal preferences in art		0 x	0 x	0 x
• makes constructive comments and criticisms with regard to art work		0 x	0 x	0 x
• demonstrates awareness of the role of the artist			0 x	0 x