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A Study of the Retarded in Relation to Their Ability to Perceive and Acquire Knowledge of the Basic Elements of Art

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A Study of the Retarded in Relation to Their Ability

to Perceive and Acquire Knowledge of the Basic Elements of Art
(TITLE)

BY

Tony J. Taylor

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CONTENTS

I

Introduction to the Problem

Basic research on artistic skill is still in a relatively primitive stage. The nature and emotion behin d artistic attitudes remains practically untouched and unsolved, and most of the tests designed to measure artistic abilities have gone with little or no follow-up or revision. The five tests most widely used today in determining apptitude in the graphic arts are:

1. The Graves Design Judgement Test, which is designed to measure the degree to which an individual perceives and responds to the basic principles of aesthetic order, unity, dominance, variety, balance, continuity, symmetry, proportion, and rhythm.

2. The Meier Art Judgement Test, which is used to measure aesthetic judgement in a "global" manner. (16)

3. The Knauber Art Ability Test, which is used to measure art ability in 15 different areas and may be used in grades 7 through 12. (8)

4. The Horn Art Aptitude Inventory, which was designed as a screening device for applicants requesting admission to schools of art. (7)

5. The McAdory Art Test, which is an older less used test, published in 1929. (14)

It is generally accepted that artistic ability probably does does not correlate highly with intelligence, but no attempt at all

has been made by psychologists or educators to correlate any of the above tests with intelligence nor were any of them designed to be used with mentally retarded children or adults. Psychologists have for the most part totally avoided the area of aesthetics.

Despite a complete lack of understanding in the field, educators connected with retarded students have felt impelled to take a definite stand, either totally denying art experiences to the retarded on the grounds that they could not profit from such experiences or totally swamping the students with art activities to make up for their relative inactivity in academic areas. A realistic approach should center somewhere between the two extremes.

It is the purpose of this study to show that retarded people can learn basic art terms and concepts and that with sound behavioral objectives in mind gains can be realized and measured in an objective test situation.

II

Review of the Literature Related to This Study

Retarded children fall under the classification of special or exceptional children. In cold, statistical nomenclature they are defined as that segment of our society which falls below one standard deviation below the mean for their particular age group. This is of course an extremely broad and all-encompassing categorization, thus the term "mentally retarded" or "mental retardation" will be used to refer to all degrees of mental deficit. The term "trainable mentally retarded" is slightly less general and will include moderate and severely retarded with approximate Stanford-Binet I.Q.'s ranging from 25 to 50. Trainable retarded children and adults are not expected to achieve functionally usefull academic skills. Self-care and social adjustment within a restricted environment are envisioned as the goals of their school experience.

There has been a dearth of information published dealing specifically with art and the mentally retarded. Wiggin conducted a study in 1961 from which he concluded that seven characteristics should be included in an art activity to insure success:

1. be a structured activity, starting with shape
2. have display possibilities 3. lead to the dis-

covery of some new form 4. be a familiar home activity 5. show clearly a step by step progress 6. use materials a size larger than the hand 7. be three dimensional. (21:194)

While a definite step in the right direction, there were several questions raised about this study; the most popular activities were compiled by the teachers and no evaluative instruments were used to determine the popularity of the art activity with the students or the art concepts learned from involvement in the art activities.

Gaitskell and Gaitskell conducted a three year study to ascertain attitudes and modes of expression of retarded children involved in various teaching experiences and to discover the most effective means of teaching these children. They compiled the following results:

1. Children with I.Q.'s of 50-89 have the ability to participate in a program of art education and to profit from these experiences.

2. Mentally retarded children follow the same stages of development in artistic expression as nonretarded children, but at a slower pace.

3. Mentally retarded children tend to select subject matter for their expression within the framework of their experience.

4. Mentally retarded children respond well to the same teaching methods used in teaching art to nonretarded

children; however, slow learners require more individual attention.

5. Mentally retarded children can use the same basic tools and materials as nonretarded children in an art program. (4:195)

The third major study was conducted by Antusa P. Bryant and Leroy B. Schwan from 1967 to 1969. Their thesis was that;

> ...children with impaired mental abilities are capable of both expressing themselves artistically and of understanding art forms. They believe that a good art program can be a profitable experience for such children. (1:51)

To test their thesis the authors developed a two-phase, two-year art education program that was implemented between 1967 and 1969. During these two years they developed and administered an instrument known as the Bryant-Schwan Design Test. (1:57-60) They also developed and refined several art lessons which could be used in a standard manner with groups of retarded children. Their results and observations made during this study were:

1. The mentally retarded child is capable of reacting to specific art media. Furthermore, he is capable of expressing himself artistically with the use of specific materials.

2. It seems that a mentally retarded child, with an I.Q. score in the range of 23-80, can handle any art material that is given to him, provided directions are made simple

and that enough repitition is allowed. The trainable child was not as quick motorically nor was he as well coordinated as the educable child. However, both groups:

1. Usually accepted the activities provided for them

2. Concentrated on their activities with very minimal direction and guidance from the art teacher

3. Completed each project within 30 minutes

4. Produced original designs

5. Expressed pleasure over the researchers' coming to work with them and desired that they come back to do more work with them (1:52)

Studies by Cruickshank and Robinson (1963) have shown that developmentally retarded children are considerably below normal in their ability to think abstractly, are close to normal in their ability to deal with concrete problems and are closest to normal in mechanical ability. His ability to grasp spatial relations usually exists only as it is connected directly with concrete objects. He can work with and manipulate, sometimes with a high degree of dexterity, actual objects such as tools and models but has little success with maps, plans or blueprints. Some psychologists and educators believe that retarded children develop in a unique way, in that any similarities between the development of the retarded child and a normal child are merely superficial and offer few clues as to how we might go about training and educating the retardate. The theory commonly adhered to, however, by most educators states that the retarded child develops in the same way

that the normal child, only slower, and that because of this he can be taught as any other child of the same mental age, with some minor adjustments only. These minor adjustments, however, are very important and unique to each student.

In working with the retarded it is extremely im portant to be aware of the relation of creative development and mental growth. The retarded child or adult classified as trainable is generally considered to achieve a maximum artistic and mental ability of the average third grader and rarely progresses beyond this point. (17:97) It is important to keep this fact in mind when planning an art activity for the T.M.H. student.

The relevancy of art and art experiences in the life of the retarded can be argued on several grounds, not the least of which is as it relates to psychotherapy and the emotional well being of the individual. A number of workers have utilized artistic media as adjuncts to psychotherapy. Among the media most commonly employed have been drawing, handicrafts, finger painting and dancing. Freud refers to the relationship between art and psychotherapy in a somewhat more subtle manner. It was his contention that we experience a dream predominantly in visual images with perhaps thoughts, feelings and the other senses being involved in a secondary manner. Part of the difficulty of giving an account of dreams is due to ones having to translate these images into words. 'I can draw it,' a dreamer often says to us, 'but I don't know how

to say it.' (3:90)

Such "therapy" provides the retarded child with a means of non-verbal communication for his ideas and emotions, and has the intrinsic appeal and symbolism of play. Art activities invite the creation of a world that is egocentrically organized. Each element in the student's work contains part of himself. It is also most important in that it provides the child with a tangible, concrete product for his efforts and serves asa source for praise and constructive, positive reinforcement. This artistic expression can permit a catharsis or ventilation for anxieties and tension, and in fact may be the only emotional release available to the retarded child. In its role as therapy, art activities allow the retarded child to escape briefly from uncomfortable situations in which things seem to be going from bad to worse. It also provides a medium in which he can test his competancy and mastery of the world around him. Artistic expression can also serve to desensitize him towards situations or things which might frighten him by allowing him to symbolically take control on paper of what is aversive to him or by repeating over and over again on paper or in some medium a positive feeling or action which will help him overcome his fear. Through artistic expression he can be himself without fear of reproach or failure. He can act out fantasies or emotions which would normally be inappropriate and in so doing may come close to understanding and accepting his or her own reality.

The retarded child has had to constantly face failure, which tends to breed unrealistically high or unrealistically low levels of aspiration, either one of which does an injustice to the actual capabilities or potentialities of the child. Artistic expression is a means to escape failure and thus offers the retarded child a chance for realistic selfassessment.

The value of art and its inherent processes are demonstrable in other areas also. It is the "art process" to which the late Viktor Lowenfeld (13) devoted much of his expertise and philosophy. It was his contention that certain characteristics in the art product could provide evidence of the child's growth and development, that a change in a child's art product, that was indicative of personality growth, was directly attributable to the fact that the child had engaged in an art process. If one is to accept Lowenfeld's position it naturally follows that art in its most subordinate role is at least a map or a blueprint recording and relating personality changes and at the other extreme could possibly be a major force in altering or enhancing the development of a child's personality and character. Whether it is the process or the inspired teacher presenting the process that is responsible for a person's growth is academic as long as high standards for both are maintained. What is important is that a positive growth does take place. This growth can be identified along several distinct yet interrelated channels.

Perceptual Growth: To grow perceptually is to become more discerning or more cognizant of the existence, character, or identity of things. (13:27-28)

The very nature of the art experience allows students to explore new media and new ideas, expanding their field of experience and making them more aware of their environment.

Intellectual Growth: This is a complex and complicated area to talk about, not only in reference to the retarded child but as it concerns anybody. There is no concensus as to what a uniform definition of intelligence might be and thus no way to fully and adequately measure mental or intellectual growth. Intelligence tests measure only what they were constructed to measure and even then the validity of many is dubious. Some theories of intelligence emphasize the capacity to learn. Colvin believes that,

> ...intelligence is equivalent to the capicity to learn. (18:195)

Henmon (1921) believed intelligence to be related directly to the amount of knowledge possessed by an individual; he states,

> ...the untutored savage...may have high intellectual capacity, but without knowledge we should not ordinarily call him an intelligent man. (18:195)

A more contemporary approach was argued by David Wechsler (1944) when he defined intelligence as,

> ...the aggregate or global capacity of the individual to act purposefully, think rationally and to deal effectively with his environment. (18:3)

An adequate operational definition of knowledge, and the one relied on for this study, might be an increase in knowledge or ability which can be demonstrated or measured in a test re-test analysis. For the retarded child involved in an art activity this intellectual growth may be broken down into several sub-units.

Perhaps the simplest most basic element of growth can be seen in the student's manipulation of the tools and materials used in a particular art project. As the student uses such tools as scissors, pencils, brushes, rulers, paints, etc., he becomes more familiar with them and his knowledge and dexterity with them increases accordingly. With the appropriate supervision and instruction this knowledge of the inherent characteristics of these tools may carry over and be applied to other unrelated activities. It is highly gratifying to teacher and student alike when carry-over of this type is realized, when a student learns that the scissors he used to cut paper for his art project may also be used effectively to cut material in a sewing situation or twine in work

related activities. The carry-over, which might seem ridiculously simple, even intuitive, for the normal child could represent a monumental and highly reinforcing accomplishment for the retarded child.

The art process fosters intellectual growth also by requiring the student to more closely analyze his concepts.

By attempting to communicate a concept or an emotion visually, the student must focus all his attention and concentrate all his energies on the task at hand. Whether this be attempted in a trial and error manner or by some other means the results should be the same. Either he will realize that his concepts are not as clear as he previously expected or through this close personal scrutiny he may realize errors in his thinking and wish to re-orient his train of thought. The result of either, however, will produce intellectual growth which of course is one of our primary goals.

Finally, perhaps the most unique contribution an art activity can make to intellectual growth is through its inherent nondiscursive experience. This experience can be gained only by active participation in art making, because through activity and only through activity can one become aware of the visual particularities of experience or the nondiscursive dimension. It is this process that

more fully opens our eyes and makes us (retarded children included) more cognizant of our environment.

Emotional Growth: Many retarded children and adults are unable to cope with their emotions, their frustrations and anxieties in socially acceptable manners. The art process gives them a means to properly vent frustration. They can accomplish on paper, in clay or with paints what they can not in real life situations. They can artistically destroy their antagonisms and at the same time learn more about their own emotions by giving them form and thus enabling themselves to better understand and manage these emotions. In essence they are exposing their emotions and putting them to constructive use. Emotionally the art process contributes a great deal by giving the retarded child a sense of accomplishment and source for great pride. He has involved himself in a thoroughly human and personal activity and produced a thing of great beauty. Like any normal person this represents a a very vulnerable period in a retarded child's life. He has exposed his emotions and is extremely susceptable to criticism. The teacher should be especially sensitive at this juncture and capitalize on the student's condition, offering positive reinforcement and evoking peer group praise.

In planning and implementing an art program for trainably retarded children and adults it is important to know at approx-

imately what mental age tha students are functioning. This, however, should not be used as a crutch or taken as an absolute for there are inherent biases and inaccuracies attached to any mental age labeling. The retarded child is an unique individual and possesses a personality just as intricate and complicated as the normal child with the added burden of physical and mental handicaps. The art teacher should;

> ...make himself the ally of the child's creative venture, lending both technical assistance and emotional support. By upholding the basic requirement that the material be used to produce works of art, the art therapist counteracts the tendency toward dissipation into fantasy or play. (9:34)

It is also the duty of the teacher to as completely as possible familiarize himself with the etiology and specific characteristics of each student's particular handicap. By doing this he will be able to more realistically asses each student's potential and hopefully not jeopardize the success of his program by demanding too much or expecting too little. In making this assessment the first place the teacher is likely to turn is to the student's achievement level by refering to an I.Q. score assigned to him. A great deal of caution must be exercised in working with students with very low (below55) test scores. The teacher should use these test scores only to establish very general functional boundaries and should not arbitrarily categorize and label students without first exploring their capabilities for himself. Labeling a student as

far as his functionable ability is concerned could prove to be irrevocably detremental to his future development. All too often a T.M.H. student's file will be packed with evaluations and reports from doctors, psychologists, teachers, therapists and countless others involved with assessment, each listing the individual's handicaps and shortcomings; on the whole a very negative presentation. The teacher should make a conscious effort not to be overwhelmed by this data but should give the student every possible benefit of the doubt.

The immediate environment into which the retarded child is placed is of the utmost importance. In order to optimumly motivate the retarded child one must sufficiently understand his physical and mental limitations and be able to recognize peaks of stimulation in order to receive the optimum positive feedback. As a teacher involved in motivating a retarded child for an art activity care must be taken to avoid overstimulation. Overstimulation, the type that results from introducing stimuli from a great variety of sources and from sources too alien or sophisticated for the child to relate to, will accomplish little more than confusion and may jeopardize the entire art program. The motivation should of course induce interest and generate excitement but must be carefully structured within definite boundaries to avoid chaos.

It is important when planning a lesson for the T.M.H. student to implement and place emphasis on certain learning theories that are routinely used with normal children. At the risk of establishing a hierarchy of learning theories the author believes it is safe to say that order, repetition and structure are of the utmost importance to the retarded. A new learning experience should be linked, and in fact should overlap, the previous experience so that repetition can reinforce the new learning. Generally it is conceded that a few structured, carefully planned art experiences pursued in depth achieve better results than many. The materials suitable for the retarded child are the ones appropriate to the normal preschool child--clay, large heavy pencils, large crayons, thick chalk, thick-bristled brushes, large pieces of paper, quick drying tempera paints, etc.

III

Investigation and Procedure

The population of this study consisted of 15 retarded adults; 11 men and 4 women. Their chronological ages ranged from 21 to 49. Mentally their I.Q.'s ranged from a low of 31 to a high of 87 as determined from extrapolated scores on the Peabody Picture Vocabulary Test, Form B. The participants were all clients from the STRIVE program at the Coles County Association for the Retarded in Charleston, Illinois. C.C.A.R. is a multi-faceted organization offering services at three levels; 1. children's day-care 2. adult sheltered workshop and 3. the STRIVE program. The STRIVE program consists of retarded persons above the age of 16 who for either physical and/or mental reasons cannot function independently in the community or in the sheltered workshop environment. They are functionally classified as T.M.H., solely for organizational and placement reasons within the confines of C.C.A.R. They represent a totally heterogeneous configuration with regard to age, sex, home or institutional environment, physical and/or mental handicaps and I.Q.

The physical make-up of C.C.A.R., where the testing and art art activities took place, left much to be desired. The classroom

for the STRIVE program was directly adjacent to the sheltered workshop and the temporary room dividers did little to block out noise from the workshop. The room was small, hot, stuffy, and poorly lighted, and was not at all conducive to art activities. Time, however, was not a limiting factor as an hour and five minutes was alloted to each class. This proved to be much more than was needed. The attention span of most of the participants was relatively short and they either finished their projects or for the most part became inattentive in usually 30 to 40 minutes.

Despite these various debilitating factors surrounding this study, the results and observations made during this study exposed certain tendencies that should be considered and pursued further by psychologists and educators alike.

To obtain a working general measure of intelligence that could later be correlated with the test re-test scores, the subjects were administered Form B of the Peabody Picture Vocabulary Test. Their raw scores from this test were then translated into I.Q. scores by referring to the appropriate table of extrapolated scores in the back of the Peabody Test Manual. They were then individually given the abbreviated Bryant-Schwan Design Test (see appendix), after which they participated in the six planned art activities and were then re-administered the same abbreviated Bryant-Schwan Test.

The abbreviated Bryant-Schwan Design Test required no written or verbal responses; the individual being tested had only to point to the particular square (or texture) which in his opinion best answered the testors question.

Sections A, B, and C were each constructed in exactly the same fashion. One design or color was placed on a two inch square card and a composite card was made that was divided into 2" squares containing exact copies of all the designs (or colors) for that particular section that appeared on the single cards.

In part I of sections A, B, and C the testor held up a single card and asked the testee to point to its exact duplicate on the composite card. "Show me a _____ that looks like this." In part II the testor asked the individual being examined to identify on the composite a particular design or color. ("Show me a straight line.")

In section D, a sample of each textural material was laid out on a tray in front of the participant. He was then instructed to feel a sample hidden behind a screen on the table that was identical to one of the textures on the tray and identify it by picking up the corresponding sample on the tray. "Show me the one that feels like this."

One point was given for each correct response and nothing for an incorrect response. Each participant was required to finish the entire exam, regardless of the number of errors he may have made in any particular section. A final raw score was determined by totaling the correct responses from each section.

A. The Lessons

The following lessons were administered at various times throughout the day to groups of 5 or 6 as part of their regularly scheduled "arts and crafts" program. The classes met for 65 minutes on Tuesdays and Thursdays and were held in their regular classroom. Two different lessons a week were given for a period of three weeks. The choice of specific lesson plans was arbitrary and could have been made from any of the countless activities suitable for average lower primary students. The only stipulation was that they include or cover those elements and/or terminology to be tested in the pre- and post tests. The objective was to produce a gain in knowledge of those new terms that would result in a concomitant increase in student's scores on the retest. Quality of and completion of the particular activities was of secondary importance. Because each classroom activity is unique to a certain degree the actual wording for each motivation and procedure necessarily varies. A careful attempt, however, was made to be as consistent as possible in establishing a uniform atmosphere for each class.

The lessons were as follows:

Lesson No. 1 "Learning to recognize and work with the primary colors.

Large pieces of butcher paper were rolled out on tables in front of the students. Each table was provided with an adequate supply of red, yellow and blue tempera paint in large, open aluminum pie tins. The teacher began the discussion something like this: "I have three things here that I am sure you all know; a shiny (red) apple, a ripe (yellow) banana, and a big (blue) balloon. What can you tell me about each of these?" The class was involved in several minutes discussion about each of the three objects; mostly relating personal experiences with each. The teacher had to point out the relationship between each object and the primary color for which it stood. "Let's each take our pieces of sponge and see what kind of pictures and designs we can make using the primary colors. See what kind of different textures we can get from our sponges." Continually moving from student to student the teacher praised each for his effort and showed him different uses of the sponge, such as; dabbing, drawing large bands of color, rolling the paint soaked sponge across the paper, dropping the sponge on the paper, and allowing paint to drip from it.

Lesson No. 2 "Using and mixing the secondary colors"

A demonstration table was set up with the primary colors, several small mixing dishes and an assortment of objects (bottle caps, popsicle sticks, blocks of wood, straws, etc.) "Does

anyone know what two colors on the table we might mix to make the color orange?" Does anyone know what two colors we could use to make purple?" What two colors do you think might be used to make green?" Each student was given a supply of the primary colors and allowed to mix small portions of green, purple and orange. A quick demonstration was performed to show how by dipping objects in the tempera mixtures and pressing them on the white paper some interesting designs and prints could be made. "Let's all look around the room and see if we can find two or three things that might be used in making our prints."

Lesson No. 3 "Learning to recognize the square, oval, star, diamond and cross."

The teacher held up large illustration board cutouts, one at a time, of a square, oval, star, diamond and cross. "Who can tell me what we call each of these shapes?" "Can you tell me some other things with different names, but have the same shape as one of these?" "Pick out several shapes and using your crayons outline and color them in on your paper." "See if you can use all the shapes at once to make a different design."

Lesson No. 4 "Learning to recognize the circle, triangle, rectangle, $\frac{1}{2}$ circle and wedge shape."

Very similar to the previous lesson except the students used

styrene templates in the above shapes and printed them with tempera paints on large sheets of white butcher paper. The templates were first shown to the class one at a time and they were asked to identify them. "Who can tell me what shape this is?" Where have you seen shapes like these before?" "Can you see any of these shapes in our room?" "Let's use these new shapes and our paints and print a design."

Lesson No. 5 "Learning to recognize the differences in lines and shapes."

Each student raised his hands far over his head and held a ball of thick colored rug yarn. The teacher then brought the yarn down under the student's feet and up to his hands again, cut it, and tied the two ends together. Each student then had a circle of yarn to fit his own height. "Now we are going to see how many different shapes andhow many different kinds of lines we can make, using our bodies and our circle of yarn." "How do you think we can make a square, a rectangle, or a triangle?" "Now let's work in pairs and see who can make the best "spider web."

Lesson No. 6 "To help students recognize and work with the different textures around them."

First each student was given an assortment of textural material which included cardboard, cottonballs, plastic spoons, toothpicks, twine, sandpaper, pipe cleaners and sponge and asked to examine each and pay particular attention to how each one feels. "Which one feels soft and fluffy?" "Which one is rough and gritty?" "Which one feels springy and bouncy?" "On your sheets of cardboard glue down your different textures to make a picture of different things you can feel."

IV

Analysis of the Data

Interest seemed quite high just prior to each art activity. The students were keenly aware of the new materials around the room and were all quite anxious to start working with them. In retrospect the motivations seemed to be of secondary importance. Most of the students came into art with a good attitude, knowing this was a place they usually had a good time, and the mere sight of all the materials was quite stimulating.

Lesson No. 1 This particular motivation did not seem to be overly exciting to them. Each student was familiar with the apple, banana and balloon and readily discussed them. Not one student, however, voluntarily discussed them in relation to the primary color they represented but referred to each in relation to personal experiences they have had with them. What enthusiasm was generated probably came directly from the environment and the project itself. In other words the art activity appeared to be self-motivating.

The students had all worked with tempera paints before and were quite familiar with its properties, the use of a sponge, however, added a new dimension. Most of the students were eager

to experiment and discovered they could create a variety of textures with little prompting from the teacher. Everyone finished at least one painting in the period and many began work on a second.

Lesson No. 2 The actual printing process generated a great deal of enthusiasm, especially when coupled with the hunt for their own objects with which to print. The students exhibited only a cursory interest in the mixing demonstration. Everyone easily finished this project in one class period. Most of them spent as much time looking for unique objects to print with as they did in the actual printing. They enjoyed very much showing their finds to the teacher to get his approval to use them. After printing their own objects several times they began trading and using their neighbors materials. The fact that they were using only the secondary colors seemed of little if any interest to them, especially in relation to their printmaking activities.

Lesson No. 3 All of the students know the square, cross and star shapes but only two knew the diamond and no one knew the oval, although several students did recognize and name other oval objects (i.e. football, egg.).

The students were all quick to join the discussion of the various shapes and after going over them all twice it appeared

that most could recognize them. When asked to name other objects of the same shape such replies as "football, church cross, egg, and Christmas tree star" were given. Although a few students did so spontaneously the rest of the students had to be shown unique ways of combining and overlapping their shapes to create more interesting designs. Everyone completed the project in the alloted time and several were quite proud of the intricate designs they had made. All the work was placed on display and the students seemed to have little trouble picking out and naming the various shapes hidden in the designs.

Lesson No. 4 Produced some interest, but not as much as the previous lessons. The students were eager to point out examples of the shapes, such as; "the clock on the wall for a circle, the door for a rectangle." Everyone worked quickly and confidently on this lesson as they had had considerable previous experience printing with tempera. The students were encouraged to use overlapping and most of them did so to such an extent that the original, individual shapes were completely obliterated, leaving large, amorphous masses of color on the paper. It seemed to be an almost natural progression for most of the students to continue printing over and over their previous designs and allow the tempera to build up quite thick on their paper. Once again, this tends to indicate the student's total

involvement with the process or the "art activity", practically to the exclusion of all else. The use of a particular template for its individual intrinsic design qualities appeared nonexistent as the students seemed to select them quite by random.

Lesson No. 5 Created a great deal of enthusiasm that seemed to be maintained throughout the entire project. The yarn was a new medium for most and it allowed them to stand, sit, lie, kneel, work in pairs and be quite physical. Almost every student was able to make squares, triangles, and rectangles and recognize them when made by other students. Identifying different types of lines proved more difficult but after some demonstrations by the teacher most students were able to identify diagonal, horizontal, verticle, straight, crooked, short, long, thick and thin lines. (the yarn becomes thin when tension is applied and thick when slack) The students also worked in pairs to create fantasy line environments, such as "spider webs." With the help of the teacher they were able to visualize many different things like "lightening bolts, volcanos, piles of spaghetti," etc. They enjoyed this lesson tremendously and were still highly motivated at the end of the period. By introducing a variety of colored yarn the possibilities for exploration and creativity are greatly increased.

Lesson No. 6 The student had little difficulty differentiating between the different textures, but a few did confuse similar terms like "soft and fluffy" and "springy and bouncy." These terms were not selected by the teacher but were taked directly from the Bryant-Schwan Design Test (1:57-60), so no attempt was made to replace them with less ambiguous ones. Enthusiasm did not appear to be too high for this project but all the students did complete the assignment and several came up with quite unique designs. Two students used the collage materials to make people with toothpick arms and cottonball heads.

It must be remembered that the 15 individuals involved in this test encompassed an extremely wide range of physical, emotional and mental handicaps. Furthermore, no attempt was made to structure motivation for any of the activities on an individual basis. The motivations were as much as possible, uniform from class to class and from individual to individual.

Correlations between specific scores on the abbreviated Bryant-Schwan Design Test (see appendix) and the Peabody Picture Vocabulary Test by the 15 participants showed positive but extremely low relationships of .28 on the initial test and .25 on the retest, both of which lie beyond the 5% level of confidence. This tends to fall in line with the general con-

census that there is no correlation between measured intelligence and general artistic knowledge or ability. Comparison of the scores on the test and re-test showed a net raw score gain of 12.68%. This indicates that the students on the whole exhibited an increase in knowledge of test questions from the test to the re-test.

TABLE I

Chronological age, mental age, and I.Q.'s

Pupil	C.A.	M.A.	I.Q.
1.	21-5	5-11	42
2.	30-2	8-6	58
3.	48-0	10-2	66
4.	28-10	10-4	67
5.	49-8	7-7	53
6.	28-2	11-7	74
7.	26-1	4-9	34
8.	47-7	12-6	78
9.	24-0	7-3	51
10.	25-6	7-5	52
11.	23-7	5-6	39
12.	44-4	14-2	85
13.	49-1	14-4	87
14.	21-5	4-4	31
15.	24-8	6-2	43

N=15

TABLE II

Test= abb. Bryant-Schwan Design Test

Pupil	Test (A)	Re-Test (B)
1.	12	11
2.	26	19
3.	9	7
4.	19	17
5.	23	21
6.	19	20
7.	37	34
8.	11	12
9.	20	17
10.	22	20
11.	19	15
12.	13	9
13.	25	21
14.	35	33
15.	18	12

N= 15

TABLE III

abb. Bryant-Schwan Design Test, mean, standard deviation
Peabody Picture Vocabulary I.Q. mean, standard deviation

Test	Mean	S.D.
Test (A)	20.53	8.04
Re-Test (B)	17.87	7.75
Peabody (I.Q.)	57.33	18.17

N= 15

TABLE IV

Correlation between Test (A) and Peabody Picture Vocabulary I.Q.

N=15 Correlation=.28

Correlation between Test (B) and Peabody Picture Vocabulary I.Q.

N=15 Correlation=.25

V

SUMMARY

The Problem

The purpose of this paper has been to show that retarded individuals can acquire a measureable knowledge of the basic elements of art; and to demonstrate the relationship, if any, between artistic knowledge and measured intelligence.

The Test

The test and re-test administered to the 15 participants in this study were identical and were derived directly from the Bryant-Schwan Design Test. (1:57-60) No additions were made to the test as it was originally designed, only deletions of more difficult materials were made at the end of each section to facilitate its administration. The test and re-test were administered individually to the participants and took no more than 10 minutes to complete. The final results of the test and re-test were compared on a group basis to ascertain what gains, if any, were realized. Comparisons and correlations were also computed on an individual basis between both test and re-test scores and extrapolated I.Q. scores derived from the Peabody Picture Vocabulary Test, Form B, to see if any valid relations could be made between an individual's measured I.Q. and his knowledge of certain art terms and concepts.

Findings and Observations

The major significance of this study lies in the fact that the results indicate that retarded individuals can learn limited art concepts through systematic teaching. They can also learn art terminology by direct exposure to, manipulation and verbalizing about concrete objects which have a direct relationship to the terms or concepts being studied.

A correlation of .28 was found between the initial tests and the I.Q. scores and .25 between the re-test and the I.Q. Both results were extremely low and lie beyond the 5% level of confidence making it unfeasible to attempt to draw any relationships between I.Q. and general artistic knowledge. There was, however, a 12.68% overall increase in scores between the test and the re-test, indicating a gain in knowledge of basic art concepts as outlined in the abbreviated Bryant-Schwan Design Test (see appendix). Since the previously outlined art activities were responsible for this gain it is evident that retarded people can benefit from and increase their artistic knowledge when exposed to a carefully structured form of art instruction.

Certain basic educational procedures or techniques were found to be more successful than others. When introducing new activities or materials to retarded students they should be

presented in as basic a manner as possible, keeping in mind that it is quite easy to overwhelm and confuse them with unnecessarily complex instructions and details. Although students tend to emulate the teachers examples in the beginning it was found to be much easier to guide them on their own paths later than to begin in chaos due to too little instruction and hope they can find their own directions later.

Repitition and overlearning were found to be effective procedural devices. Once a new term or concept is introduced at the beginning of a lesson the teacher should capitalize on every available opportunity to get a student to verbalize about and thus repeat the term. The more repitiions or examples of a particular term presented the more likely the student is to retain it and integrate it with his regular working vocabulary.

Before the students begin working it is important that they understand completely what is expected of them, such as where exactly they are to work, what finished product if any they should be working toward and any rules of conduct or behavior they should know. As in any classroom this may help everyone avoid many unpleasant situations which may arise.

Retarded students are especially sensitive to criticism and know perhaps better than anyone the feelings of failure. To

help avoid frustration and feelings of inadequacy the teacher should constantly be alert for anything for which he might give praise. Positive reinforcement can be an extremely powerful tool and a highly effective device to shape student's behavior and thus their attitudes.

VI

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VII

APPENDIX

Bryant-Schwan Design Test (abbreviated form)

A. Line

I. Matching

1. Show me a line that looks like this (crooked line).
2. Show me a line that looks like this (straight line).
3. Show me a line that looks like this (broken line).
4. Show me a line that looks like this (curved line).
5. Show me a line that looks like this (thin line).
6. Show me a line that looks like this (thick line).
7. Show me a line that looks like this (short line).
8. Show me a line that looks like this (long line).
9. Show me a line that looks like this (diagonal line).
10. Show me a line that looks like this (verticle line).

II. Identification

1. Show me a crooked line.
2. Show me a straight line.
3. Show me a broken line.
4. Show me a curved line.
5. Show me a thin line.
6. Show me a thick line.
7. Show me a short line.
8. Show me a long line.
9. Show me a diagonal line.
10. Show me a bent line.
11. Show me a verticle line.

B. Shapes

I. Matching

1. Show me a shape that looks like this (circle).

2. Show me the shape that looks like this (square).
3. Show me the shape that looks like this (triangle).
4. Show me the shape that looks like this (rectangle).
5. Show me the shape that looks like this (oval).
6. Show me the shape that looks like this (cross)
7. Show me the shape that looks like this (star)
8. Show me the shape that looks like this ($\frac{1}{2}$ circle)
9. Show me the shape that looks like this (pie wedge)
10. Show me the shape that looks like this (diamond)

II. Identification

1. Show me a circle.
2. Show me a square.
3. Show me a triangle.
4. Show me a rectangle.
5. Show me an oval.
6. Show me a cross.
7. Show me a star.
8. Show me a $\frac{1}{2}$ circle.
9. Show me a pie wedge.
10. Show me a diamond.

C. Colors

I. Matching

1. Show me a color that looks like this (red).
2. Show me a color that looks like this (blue).
3. Show me a color that looks like this (yellow).
4. Show me a color that looks like this (orange).
5. Show me a color that looks like this (green).
6. Show me a color that looks like this (purple).

II. Identification

1. Show me the color red.
2. Show me the color blue.

3. Show me the color yellow.
4. Show me the color orange.
5. Show me the color green.
6. Show me the color purple.

D. Texture

I. Matching

1. Show me the one that feels like this (cotton ball).
2. Show me the one that feels like this (plastic sheet).
3. Show me the one that feels like this (toothpick).
4. Show me the one that feels like this (pipecleaner).
5. Show me the one that feels like this (sandpaper)
6. Show me the one that feels like this (sponge)
7. Show me the one that feels like this (smooth metal)
8. Show me the one that feels like this (corrugated cardboard).
9. Show me the one that feels like this (twine).
10. Show me the one that feels like this (burlap).