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The Effect of Selected Motor Activities on the Social Adjustment and Motor Educability of Educable Mentally Handicapped Children

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THE EFFECT OF SELECTED MOTOR ACTIVITIES ON THE
SOCIAL ADJUSTMENT AND MOTOR EDUCABILITY
OF EDUCABLE MENTALLY HANDICAPPED CHILDREN
(TITLE)

BY

Valerie S. Twenter

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Master of Science in Education

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

1967

YEAR

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
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CHAPTER I

INTRODUCTION

Although there has been a growing interest in improving the quality of physical education for mentally handicapped children in public schools, it is the writer's opinion that there is a lag in research by physical educators concerning physical education programs for the mentally handicapped. In addition, when research has been conducted the results have rarely reached the hands of those who need it most--the classroom teachers.

As John Thorne has said, "Mental retardation is everybody's problem. And everyone can contribute to its solution."¹ However, as he continues, "The lack of research in the area of recreation and physical education is a real tragedy for the mentally retarded because so many important questions remain unanswered."²

I. THE PROBLEM

Statement of the problem. This was a study to determine the effect, if any, selected physical education activities would have on the development of social competencies

¹John Thorne, "Everybody's Problem. . .," Journal of Health Physical Education and Recreation, XXXVII, No. 4 (April 1966), p. 26.

²Ibid., p. 25.

and on two components of motor educability--balance and agility--of mentally handicapped children.

Need. While there have been studies citing the effect of physical education activities on motor educability and others citing the effect of physical education and recreational activities on social adaptability, there have been no such studies conducted in the geographic area bounded by Coles County, Illinois and, to the writer's knowledge, in the state of Illinois. Therefore, by presenting data gathered within the county, the writer hopes that this study will be useful to those working with the mentally handicapped in the state, especially in Coles County.

Limitations. Although the mental ages for the subjects were the most recent scores available, there were inconsistencies with regard to the year the subjects were tested. For instance, several subjects were tested in 1964 while others were tested in 1967.

Another limitation was the lack of available tests or scales which would accurately measure the social adjustment of educable mentally handicapped children. The tests or scales available were designed to measure the social competencies of normal children; however, the writer has adapted the Vineland Social Maturity Scale to measure the social adjustment of these children.

It was observed by the writer and her assistant that of the two groups studied, the children from the Charleston area appeared to be more mature physically than the children from the Mattoon area. This difference in the maturation level between the two groups

may have influenced the level of performance for the Charleston group.

The study was also limited by the number of mentally handicapped individuals available within a particular chronological or mental age classification. Also, an equal number of boys and girls could not be obtained.

One final limitation was that of time. The study would probably have been more meaningful if it could have been conducted over the span of one school year. However, the investigator could not commence the study until spring which limited the time for instruction to a period of eight weeks.

II. DEFINITIONS OF TERMS USED

Agility. The ability of the body or parts of the body to change directions rapidly and accurately.³

Dynamic Balance. The ability of an individual to maintain and control his neuro-muscular system in a specific efficient posture while it is moving.⁴

Educable Mentally Handicapped Children. Children, limited by slow or arrested development of their mental faculties, who find it difficult to adjust and to compete in an average classroom situation. (In regard to this study, the subjects have been screened as intermediate educable mentally Handicapped children according to the standards of the Eastern

³Harold M. Barrow and Rosemary McGee, A Practical Approach to Measurement in Physical Education (Philadelphia: Lea and Febiger, 1964), p. 118.

⁴Ibid., pp. 118-119.

Illinois Branch of the Department of Special Education.)

Mental Age. The level of a child's mental development.⁵

Social Adjustment. The ability of a child to attain behavior patterns which would produce effective relationships with other children and within groups.⁶

Social Quotient. The ratio between a child's chronological age and his social age level.⁷

Social Age. The age of social development which corresponds to the Vineland Social Maturity Scale.⁸

⁵J. M. Stephens, Educational Psychology: The Study of Educational Growth (New York: Henry Holt and Company, 1951), p. 185.

⁶George J. Mouly, Psychology for Effective Teaching (New York: Holt, Rinehart, and Winston, 1961), p. 172.

⁷Edgar A. Doll, Vineland Social Maturity Scale: Manual of Directions (Minnesota: Educational Test Bureau Division of American Guidance Service, Inc., 1947), p. 18.

⁸Ibid., p. 17.

CHAPTER II

REVIEW OF THE LITERATURE

A variety of investigations was reviewed by the writer to organize information relative to the existing knowledge about the influence of physical activities on the development of social competencies of educable mentally handicapped children.

I. LITERATURE RELATED TO SOCIAL DEVELOPMENT

J. N. Oliver in his study of mentally retarded boys, found that mental ability played little part in the choice or rejection of other boys. There was evidence that the boys were chosen for their physical ability, but they were not rejected because they lacked it. Therefore, he concluded that the relationship between conditioning and the social status of boys was very small.¹

W. O. Corder, who conducted an intensive twenty-day program of physical education for mentally retarded boys, concurred with Oliver. He found that increased I.Q. scores and increased physical fitness did not significantly affect the social status of the mentally retarded boys in his

¹Julian Stein, "Motor Function and Physical Fitness of the Mentally Retarded: A Critical Review," Rehabilitation Literature, XXIV, No. 8, (Chicago: National Society for Crippled Children and Adults, August, 1963), p. 239.

training group.²

J. R. Smith and J. G. Hurst's investigation of the relationship between motor skills and social status of a group of mentally retarded and trainable mentally retarded children indicated that the correlation between the results on the Lincoln-Oseretsky Development Scale and peer acceptance was significantly higher in educable mentally retarded subjects than in trainable mentally retarded subjects.³

The previous investigations revealed that physical education activities had only a slight influence on the development of social competencies of mentally handicapped children. However, Julian Stein's investigation of mentally retarded boys revealed that: " . . . there was not a positive relationship between physique and changes in specific components of physical fitness or changes in the social distances of his subjects."⁴

Lois Hart's investigation, in the field of recreation, revealed results similar to Julian Stein. She found no significant difference between the actual behavior of the mentally retarded young adults after their participation in a structured recreation program and their behavior prior to participation.⁵

²W. Owens Corder, "Effects of Physical Education on the Intellectual, Physical, and Social Development of Educable Mentally Retarded Boys," Exceptional Children, (February, 1966), p. 363.

³Stein, op. cit.

⁴Julian Stein, "Physical Fitness in Relation to Intelligence Quotient, Social Distance and Physique of Intermediate School Mentally Retarded", (Unpublished Ed.D. Dissertation: George Peabody College, Nashville, 1966), p. 442.

⁵Lois Hart, "An Investigation of Effecting Behavioral Changes Through Recreation," (Unpublished Ph.D. Dissertation: New York University, New York, 1964), pp. 36 & 50.

Julian Stein and Roy Prangle have generalized the influences of physical education activities on the development of social competencies in their statement: "Achievement in the area of physical fitness development apparently does not result in corresponding differential gains with regard to sociometric status."⁶

Contrary to the research presented, physical educators must not overlook the possibility that social competencies might be developed through a physical education program which is organized and orientated to develop the social competencies of mentally handicapped children.

The worker or counselor must be alert to guide his charge into appropriate group situations as the need presents itself. Social interaction and group dynamics involve more than the physical proximity of two or more people. Play and recreation have much to offer in promoting social adjustment of retardates with their peers, but the program must be planned and carried out to meet these goals.⁷

A variety of investigations were also reviewed by the writer to organize information relative to the existing knowledge about the influence of physical activities on the development of two components of motor educability--dynamic balance and agility of educable mentally handicapped children.

⁶Julian Stein and Roy Prangle, "What Research Says About Psychomotor Function of the Retarded," Journal of Health Physical Education and Recreation, XXXVII (April, 1966), p. 10.

⁷Recreation and Physical Activity for the Mentally Retarded, (Washington, D.C.: American Association for Health Physical Education and Recreation, 1966), p. 25.

II. LITERATURE RELATED TO MOTOR EDUCABILITY

H. G. Seashore's investigation which concerned the balance beam and its use as a measurement for the development of balance in children, indicated a gradual increase in the performance of mentally retarded children from seven to twelve and a half years of age. He found that the performance of mentally retarded children declined slightly during early adolescence.⁸

In agreement with H. G. Seashore, Anna Espenschade, in her investigation of dynamic balance, found a reduction in gain performance on the beam-walking tests of adolescent boys ranging from thirteen to fifteen years of age. She contributed this reduction in performance to an "adolescent lag".⁹

Bryant J. Cratty conducted his investigation to evaluate sex perceptual motor attributes of mentally retarded youth: body perception, gross agility, balance, locomotor agility, throwing behavior, and the ability to track balls. Involved in his investigation were a group of educable handicapped children, educable mentally retarded children, and trainable mentally retarded children. He found that educable mentally retarded children and educable handicapped children had their best performances during late childhood and early adolescence. He also noted that there was some deterioration in their performance in late adolescence and early

⁸Robert J. Francis and G. Lawrence Horick, "Motor Characteristics of the Mentally Retarded," American Journal of Mental Deficiency, LXIII (March, 1959), pp. 792-811.

⁹Ibid., p. 802.

adulthood. A comparison of the mean scores for all the tests indicated that the educable mentally retarded children and the educable handicapped children were significant to the scores achieved by the trainable mentally retarded children.¹⁰

In another investigation, concerned with the effect a special program of physical education would have on the development of motor skills in educable mentally retarded children, Bill R. Gearhart found that his total experimental group performed better than the control group in the balance activity of the rail-walk. He found that agility, measured through the agility run, was not significant.¹¹

Robert J. Francis and G. Lawrence Barick conducted an investigation which compared gross motor skills between normal children and mentally retarded children. They concluded that ". . . in running speed, balance, and agility, the differences among levels of performance of the mentally retarded followed the same general age and sex pattern as those observed in normal children."¹² Based on their investigation, the mean measures for both boys and girls was two to four years behind the published age norms for normal children. Also, the discrepancy between normal and mentally retarded

¹⁰Bryant J. Cratty, "The Perceptual-Motor Attributes of Mentally Retarded Youth," Challenge, (Washington D.C.: Project on Recreation and Fitness For the Mentally Retarded, March, 1967), p. 10.

¹¹Bill R. Gearhart, "A Study of a Physical Education Program Designed to Promote Motor Skills of Educable Mentally. . .," (Unpublished Dissertation: Colorado State College, Greeley, 1963), p. 22.

¹²Robert J. Francis and Lawrence Barick, Op. cit., p. 810.

children increased with age as well as with the development of complex skills.

In the investigation, "The Relationship of Age, Intelligence, and Motor Proficiency in Mental Defectives," by H. M. Rabin, it was concluded that motor proficiency had a positive significant relationship to age and that motor proficiency did not vary according to sex.¹³

Charles Rotman investigated the effect of practice on the development of motor skills of mentally retarded patients. He concluded that the more practice given to the retarded, the greater their improvement in their performance in most motor skills.¹⁴

The studies presented above while perhaps not all inclusive, represent, in the author's opinion, those investigations which most closely relate to the present study because of the methods of investigation used and the subjects involved.

¹³H. M. Rabin, "The Relationship of Age, Intelligence, and Motor Proficiency in Mental Defectives," American Journal of Mental Deficiencies, (November, 1957). 62:515.

¹⁴Charles B. Rotman, "A Study of the Effect of Practice Upon Motor Skills of the Mentally Retarded," (Unpublished Dissertation: Boston University School of Education, Boston, 1963), p. 75.

CHAPTER III

PROCEDURE

The procedure followed in the investigation consisted of the selection of a control and an experimental group. Three selected tests were administered to the two groups before and after an eight week period. During this eight week period, the experimental group received instruction in a physical education program while the control group did not. A comparison was then made between the groups in their performance on two physical ability tests and on a social maturity scale.

I. SELECTION OF TESTS

The two tests of physical ability chosen for use in the study were the penny cup test¹, as modified by Dr. Thomas Woodall, and the Bass Test of Dynamic Balance.² These two tests were selected because they met the following criteria:

1. The tests were simple in nature, so the children could easily understand what they were to do.
2. The tests involved a minimum of equipment which could be easily assembled.
3. The tests were relatively easy to score accurately.

¹Donald K. Mathews, Measurement in Physical Education (Philadelphia: W. B. Saunders Company, 1958), pp. 167-168.

²Charles Harold McCloy and Norma Dorothy Young, Tests and Measurements in Health and Physical Education (Third Edition; New York: Appleton-Century-Crofts, Inc., 1954), p. 106.

The Vineland Social Maturity Scale was used by the investigator to measure social adjustment because (1) it depicted social growth from infancy to adulthood and (2) it could be easily and accurately scored.

II. SELECTION OF SUBJECTS

Sixteen intermediate educable mentally handicapped children, used as subjects for this investigation, were selected with the assistance of the Eastern Illinois Branch of the Department of Special Education. The control group consisted of eight children from the Mattoon, Illinois area; the experimental group consisted of eight children from the Charleston, Illinois area. The control group consisted of four girls and four boys, while the experimental group consisted of three girls and five boys.

The control group had a mean chronological age of 13 years, 3 months with a range from 12 years, 8 months to 13 years, 10 months. The experimental group had a mean chronological age of 13 years, 10 months with a range of 12 years, 5 months to 15 years, 5 months. The control group had a mean mental age of 92.9 months with a range from 62.5 months to 122 months. The experimental group had a mean mental age of 100.4 months with a range from 66 months to 121.5 months.

Both the experimental group and the control group were given the Bass Test of Dynamic Balance and the modified form of the Penny Cup Test. The control group was tested in the gymnasium at their school in Mattoon, while the experimental group was tested in the gymnasium at the Lantz Physical Education

Building in Charleston, Illinois. Each group was allowed two days for testing.

After the administration of the initial tests, the investigator compared the control and experimental groups on the basis of social maturity, balance ability, and agility. Using the t-test³ the investigator concluded that there was no significant difference between the two groups at the beginning of the experiment.

III. TEST DESCRIPTION AND PROCEDURE

The gym floors were cleaned prior to the administration of each test. Also, the subjects were told to wipe off their shoes prior to their entrance into the gym.

Each child was given a standardized explanation of the tests and procedures. Since the subjects did not understand how to execute the leap, they were given instructions and demonstrations of the proper technique. Each subject was allowed five practice trials to ensure his understanding of the test. Also, to eliminate the fatigue factor, the subjects were told they could rest at any time.

BASS TEST OF DYNAMIC BALANCE

Dynamic balance was measured by the Bass Test of Dynamic Balance. The subject was shown a zig-zag pattern of eleven, $8\frac{1}{2}$ " circles. (Figure 1) Each circle was marked in the order the

³E. F. Lindquist, A First Course in Statistics (New York: Houghton Mifflin Company, 1942), p. 138.

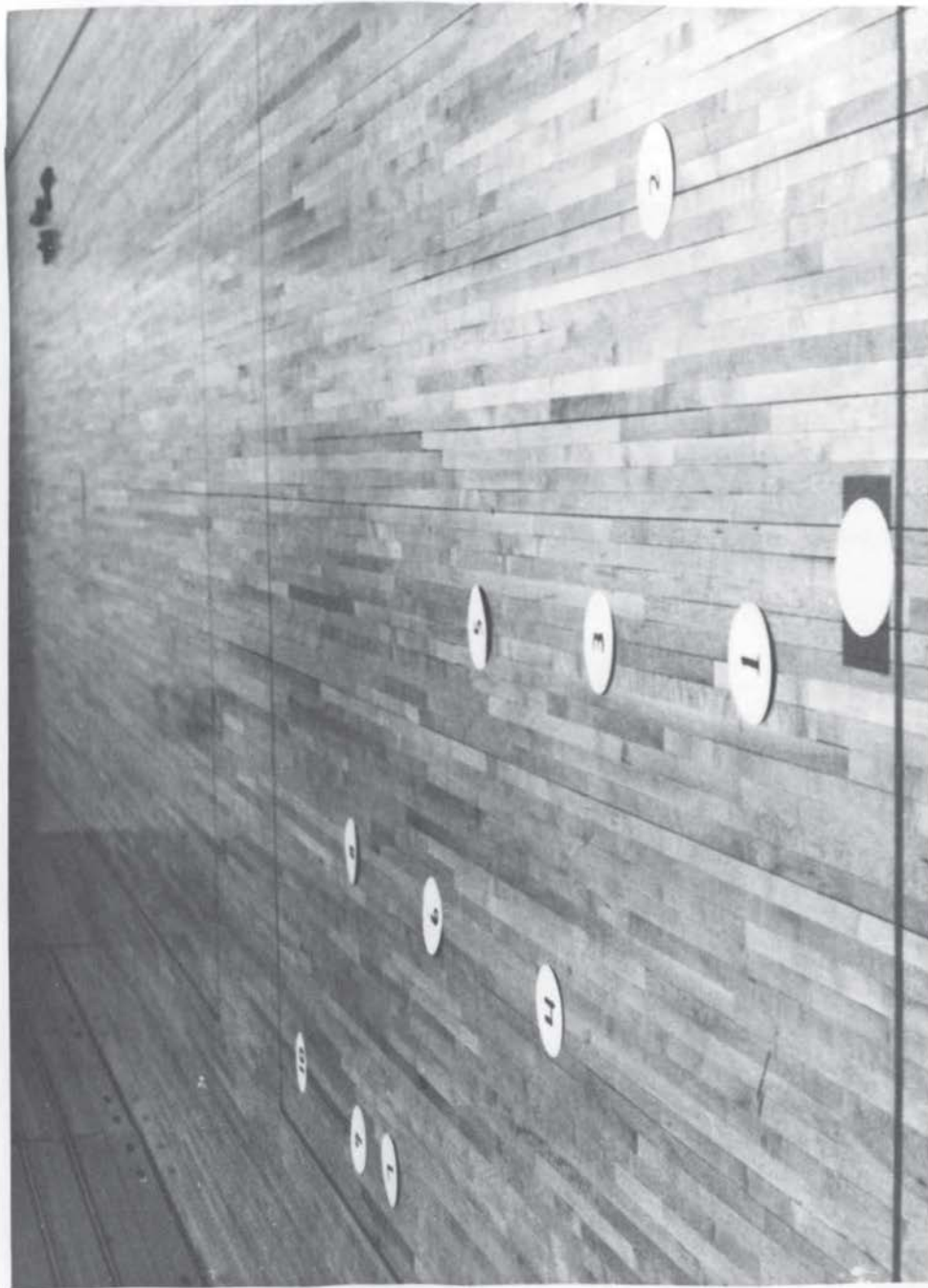


FIGURE 1
BASS TEST OF DYNAMIC BALANCE

subject would move through the test. The distance between the "starting" circle and the first circle was 18 inches. The distance between each of the other circles was 33 inches. The subject stood with his right foot in the "starting" circle; he then leaped to the next circle landing on his left foot. The subject continued to leap alternating his feet, from circle to circle until he had leaped into all the circles. Each subject was to wait five seconds in each circle before he proceeded to the next circle. The subject was timed from the instant he leaped into the first circle until the instant he leaped out of the last circle. The time was recorded to the nearest 1/10 of a second with the use of a Minerva stop watch.

The following errors committed by the subject were counted and considered in the computation of his score.

1. touching a heel to the floor
2. moving a foot while standing in the circle
3. hopping upon the supporting foot
4. touching the floor outside the circle
5. touching the floor with the other foot
6. touching the floor with any other part of the body

In scoring, fifty points were added to the length of time it took the subject to complete the test. Each error committed by the subject during the execution of the test counted as one penalty point. The number of errors was multiplied by three and the product was subtracted from the sum of the fifty points and the time the subject completed the test. The final score for the test was the average score for three trials.

MODIFIED PENNY CUP TEST

The modified form of the penny cup test was used to measure agility. This test was administered by an assistant to both groups at the initial and final testing. The subject stood behind the "start" switch mat which was connected electrically to an automatic performance analyzer (Figures 2 and 3). Twelve feet away from the "start" switch mat, three other switch mats, numbered one to three, were placed eight feet apart. Behind each mat was a light. Both the switch mats and the lights were attached to a Dekan Automatic Performance Analyzer which measured the time to the nearest 1/100 of a second. The instant the subject stepped on the "start" switch mat, a light flashed on and the clock in the Automatic Performance Analyzer automatically began. The subject was instructed to run and step on the mat in front of the light that flashed. The instant he stepped on the mat in front of the light the clock automatically stopped and his time was recorded. The order in which the lights flashed on was pre-determined from a table of random numbers.

The subjects were given instructions and three demonstrations of the test. The children were given three practice trials prior to the execution of the test. Twenty-four trials were given to each subject in the actual test. The final score was the average score of the twenty-four trials.

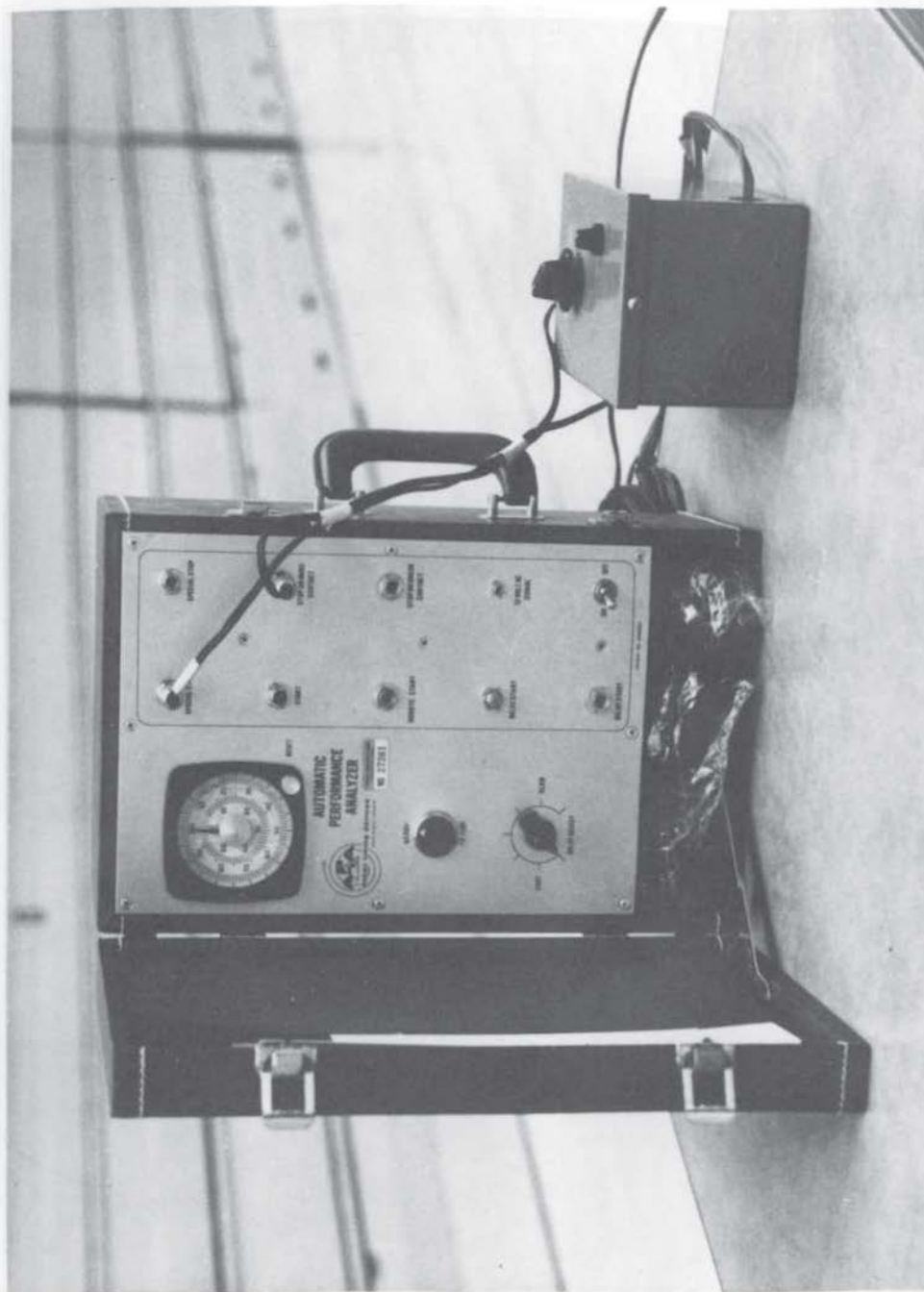


FIGURE 2
DEKAN AUTOMATIC PERFORMANCE ANALYZER

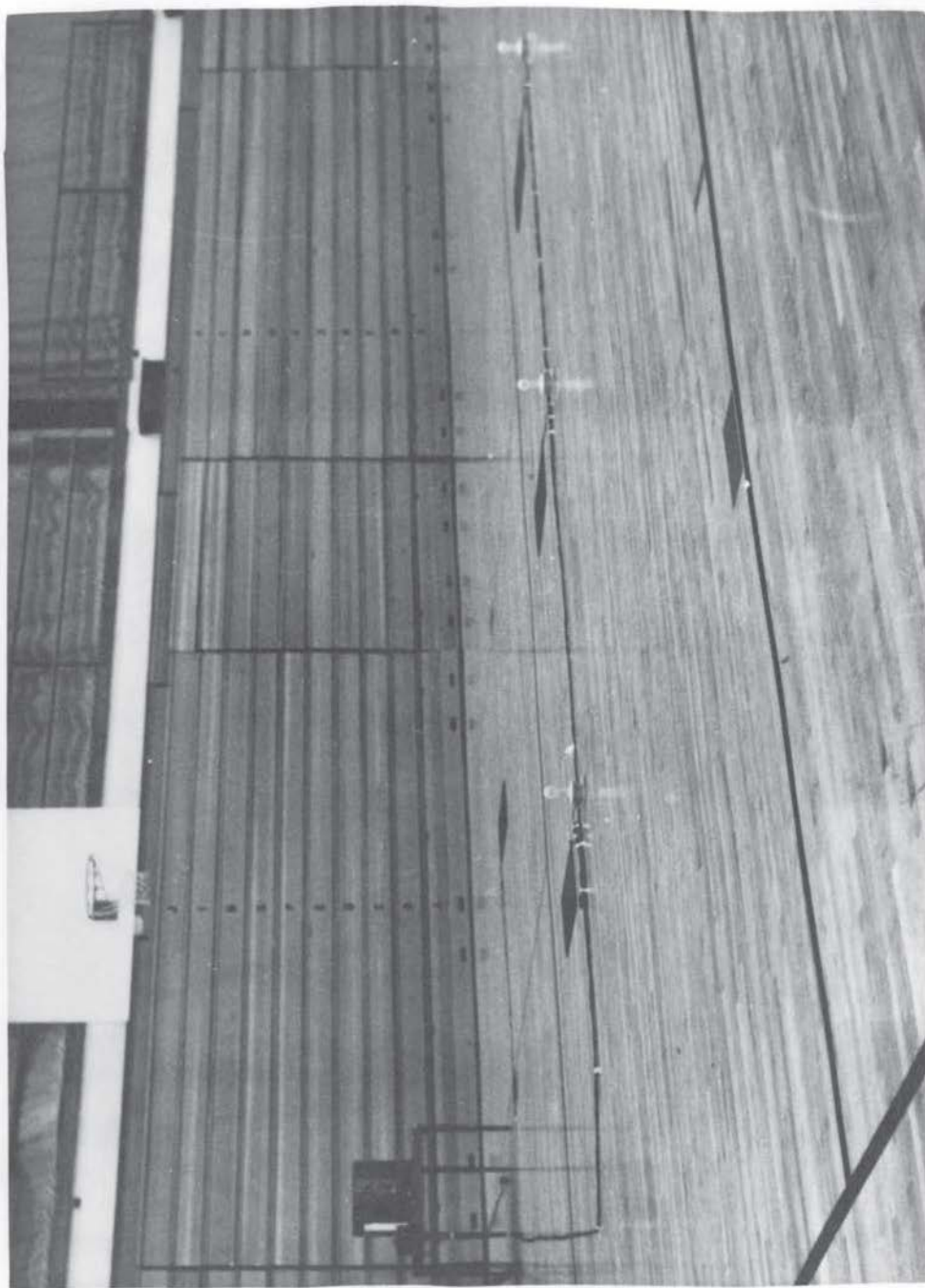


FIGURE 3
MODIFIED PENNY CUP TEST

VINELAND SOCIAL MATURITY SCALE

The Vineland Social Maturity Scale was used to measure the social adjustment evidenced between the initial and final stages of the study. The investigator filled out the scale for each child based upon information gained through interviews with the classroom teachers. Interviews with the classroom teachers were held at the beginning and final stages of the study.

The procedures used to score the scale and to compute the social quotient were followed as outlines in the Vineland Social Maturity Scale Manual of Directions.⁴

IV. INSTRUCTIONAL PROCEDURES

The program of instruction for the experimental group of intermediate educable mentally retarded children was conducted over an eight week period from March 27, 1967, to May 22, 1967. The activity period consisted of thirty minutes of actual participation, with classes meeting five days a week.

The program consisted of low organized games, ball handling activities, balance activities and relays. Since baseball is popular with many children during the spring, emphasis in the program was on ball handling activities and on low organized games related to baseball. Less emphasis was placed on balance activities. These activities were presented on days the children appeared sluggish because of the heat and

⁴Doll, op. cit.

high humidity. The balance activities consisted of experiences on the balance beam and on the balance board. Relays were incorporated to stimulate interest and social awareness as well as to allow the children an opportunity to apply fundamental skills such as running, skipping, etc.

Throughout the study the children were encouraged to give constructive criticism. They were also encouraged to help one another. Time was given at the end of each period to discuss the material taught in class. At this time, they were also encouraged to give their opinions about the games played in class. The children were forbidden to verbally complain about another child or an activity. If a child did have a complaint, his complaint was privately expressed to the writer during or after class.

A list of all the games taught during the study will be found in the appendix.

CHAPTER IV

TREATMENT AND ANALYSIS OF DATA

Data obtained from the Bass Test of Dynamic Balance, the Modified Penny Cup Test, and the Vineland Social Maturity Scale was analyzed relative to: (1) possible difference in the initial performances between the control and experimental groups and (2) changes occurring as the result of instruction during the eight weeks period.

I. TREATMENT OF DATA

The mean chronological age and mental age of subjects and the average group gain or loss of each group were computed by the following formula¹:

$$M + \frac{\sum X}{N}$$

The standard error of difference between the means of the final test administration of both groups was derived from the following formula²:

$$\frac{S.E.}{Mns} = \frac{\sqrt{d_1^2 + d_2^2}}{(N_1-1)+(N_2-1)} \cdot \sqrt{\frac{N_1+N_2}{N_1 N_2}}$$

¹Henry E. Garret, Statistics in Psychology and Education (New York: Longmans, Green and Co., 1938), p. 27.

²Charles H. McCloy and Norman Young, Tests and Measurements in Health and Physical Education (New York: Appleton-Century-Crofts, Inc., 1934), p. 430.

The following formula was used to obtain the critical ratios³:

$$t = \frac{M_1 - M_2}{\text{S.E. Dif. Mns.}}$$

The t-values which were obtained to compare the initial performance of the control and experimental group were derived from the following formula⁴:

$$t = \frac{M_1 - M_2}{\sqrt{\frac{N_1^2 + N_2^2}{N_1 + N_2 - 2} \cdot \frac{N_1 + N_2}{N_1 N_2}}}$$

II. ANALYSIS OF DATA

As indicated in Table I, there was no significant difference between the means when comparing the groups on the basis of the initial administration of the Bass Test of Dynamic Balance, the Modified Penny Cup Test, or the Vineland Social Maturity Scale. Thus, it can be assumed that the two groups were homogeneous in the areas in which they were tested.

Results at the end of the eight week instructional period are shown in Table II. It will be noted that in the balance test, the control group (M_1) showed a mean loss of (-24.35) in their ability to perform the test, while the experimental group (M_2) showed a mean gain of 3.79. The two groups differed significantly in this respect at the 1% level of confidence.

³Ibid.

⁴Lindquist, op. cit..

TABLE I

COMPARISON OF THE GROUP MEANS ON THE INITIAL
ADMINISTRATION OF ALL THREE TESTS

Variable	N	M	SD	t
Balance Test				
control	8	33.19	3.65	1.24
experimental	8	28.75	8.77	
Agility Test				
control	8	50.36	2.93	.053
experimental	8	50.43	2.71	
Social Scale				
control	8	80.37	15.22	.113
experimental	8	81.25	13.88	

TABLE II

COMPARISON OF THE GROUP MEANS ON THE FINAL
ADMINISTRATION OF ALL THREE TESTS

Test	M ₁ *	M ₂ †	t-Ratio
Balance Test	-24.35	3.79	6.09#
Agility Test	- .78	3.92	1.78
Social Scale	- 4.0	1.88	1.15

*M₁ is the control group

†M₂ is the experimental group

#Significant at 1% level of confidence

Further inspection reveals that in the two other tests, the agility test and the social maturity scale, the control group also experienced a group mean loss between their performance on the initial and final administrations of the tests, while the experimental group recorded a gain. However, the differences between the initial and final performances were not statistically significant.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

The study was undertaken to determine the effect, if any, of selected physical education activities on the development of social competencies and on two components of motor educability--dynamic balance and agility--of mentally handicapped children.

Sixteen intermediate educable mentally handicapped children from the Charleston-Mattoon area were selected as subjects for this study. The control group consisted of children from the Mattoon area and the experimental group consisted of children from the Charleston area. The mean chronological age for the control group was 13 years, 3 months and for the experimental group 13 years, 10 months. The mean mental age for the control group was 92.78 and 100.4 for the experimental group.

Both groups were given the Pass Test of Dynamic Balance and the modified form of the Penny Cup Test. The Deane Automatic Performance Analyzer, accurate to one/one hundredth ($1/100$) of a second, was used to time the subjects in the modified form of the Penny Cup Test. A Minerva stop watch, accurate to one/tenth ($1/10$) of a second was used to time the subjects in their performance of the Pass Test of Dynamic Balance. The Vineland Social Maturity Scale was used to measure their social adjustment.

II. CONCLUSIONS

On the bases of this study, the following conclusions can be made:

1. The mean times for the Bass Test of Dynamic Balance given at the end of eight weeks of instruction were significantly better for the experimental group.
2. There was no significant difference between the mean times of the experimental group and the control group in the modified form of the Penny Cup Test.
3. There was no significant difference between the mean social quotient of the experimental group and the control group on the Vineland Social Maturity Scale.
4. Although there was no significant difference between the experimental group and the control group on the modified Penny Cup Test and the Vineland Social Maturity Scale, the mean scores of the experimental group were better than those of the control group.
5. The Mean scores of the control group on the Bass Test of Dynamic Balance, the Modified Penny Cup Test, and Vineland Social Maturity Scale showed a loss between the administration of the initial test and the final test.

III. RECOMMENDATIONS

1. A similar study extending over a period of at least one calendar year should be conducted in the Charleston-Mattoon area.
2. A study should be conducted to determine the influence

a physioal education program specifically designed to affect social maturity would have on the social development of educable mentally handicapped children.

3. A similar study involving a larger number of children and other activities should be conducted.

4. Other aspects of the physical education program could be studied in addition to balance and agility.

APPENDIXES

APPENDIX A

BALL HANDLING ACTIVITIES

(A ball was given to every student)

Bouncing and catching experiences:

Bounce the ball on a spot

Bounce the ball as long as you can
without missing

Bounce the ball without missing for
a timed period of time

Bounce the ball moving around the
floor without interfering with
any one

Throw the ball against the wall
and catch it without missing for
one minute

Throw the ball at different heights
against the wall and catch it without
missing

These experiences are only a limited
sample of the experiences given to
the class. Also, the children used
balls in groups of two.

APPENDIX A (cont.)

LOW ORGANIZED GAMES

Keep away
Stride Ball
Toss ball
Spud
Dodge ball
Reverse dodge ball
Scramble
Bombardment
Rescue
Throw Goal Ball
Long Base
Beat Ball
Kickball (ball is thrown instead
of kicked by runner.)
Secret Bombardment
Guard the pin
Guard the king

RELAYS

Walk
Run
Skip
Hop
Leap
Gallop
Jump
Combinations of fundamental
movements
Use of ball with fundamental
movements

APPENDIX A (cont.)

BALANCE ACTIVITIES PERFORMED
ON THE BALANCE BEAM

Walk forward
Walk backward
Combination of walking
forward and backward
Walk forward, turn half-way around
walk backward
Walk forward, turn completely
around, walk forward
Walk backward, turn completely around,
walk backward
Walk forward with eyes closed

BALANCE ACTIVITIES PERFORMED
ON THE BALANCE BOARD

Stand on "T" for one minute
Stand on "T" without use of hands
Stand on "T" with eyes closed
Turn around on "T" without losing
balance
Kneel on "T"
Balance with one hand and one knee
on "T"
Balance on one knee on "T"

BIBLIOGRAPHY

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- Barrow, Harold M. and Rosemary McGee. A Practical Approach to Measurement in Physical Education. Philadelphia: Lea and Febiger, 1964.
- Corder, Owens W. "Effects of Physical Education on the Intellectual, Physical, and Social Development of Educable Mentally Retarded Boys," Exceptional Children, (February, 1966), pp. 357-364.
- Cratty, Bryant J. "The Perceptual-Motor Attributes of Mentally Retarded Youth," Challenge, II (March, 1967), pp. 1-12.
- Doll, Edgar A. Vineland Social Maturity Scale: Manual of Directions. Minnesota: Educational Test Bureau Division of American Guidance Service, Inc., 1947.
- Francis, Robert J. and G. Lawrence Rorick. "Motor Characteristics of the Mentally Retarded," American Journal of Mental Deficiency, LXIII (March, 1959), pp. 792-811.
- Garret, Henry E. Statistics in Psychology and Education. New York: Longmans, Green and Co., 1958.
- Gearhart, Bill R. "A Study of a Physical Education Program Designed to Promote Motor Skills of Educable Mentally . . .," Unpublished Ed.D. Dissertation, Colorado State College, Greeley, 1963.
- Hart, Lois. "An Investigation of Effecting Behavioral Changes Through Recreation." Unpublished Ph.D. Dissertation, New York University, New York, 1964.
- Lindquist, E. F. A First Course in Statistics. New York: Houghton Mifflin Company, 1942.
- Mathews, Donald K. Measurement in Physical Education. New York: Appleton-Century-Crofts, Inc., 1959.
- McCloy, Charles H. and Norma D. Young. Tests and Measurements in Health and Physical Education. Third Edition. New York: Appleton-Century-Crofts, Inc., 1954.
- Mouly, George J. Psychology For Effective Teaching. New York: Holt, Rinehart, and Winston, 1961.
- Recreation and Physical Activity for the Mentally Retarded. Washington, D. C.: American Association for Health Physical Education and Recreation, 1966.

- Rabin, H. M. "The Relationship of Age, Intelligence, and Motor Proficiency in Mental Defectives," American Journal of Mental Deficiencies, LXII (November, 1957), pp. 507-516.
- Rotman, Charles B. "A Study of the Effect of Practice Upon Motor Skills of the Mentally Retarded," Unpublished Ed.D. Dissertation, Boston University School of Education, Boston, 1963.
- Stein, Julian. "Motor Function and Physical Fitness of the Mentally Retarded: A Critical Review," Rehabilitation Literature, XXXIV, (August, 1963), pp. 230-263.
- Stein, Julian. "Physical Fitness in Relation to Intelligence Quotient, Social Distance and Physique of Intermediate School Mentally Retarded." Unpublished Ed.D. Dissertation, George Peabody College, Nashville, 1966.
- Stein, Julian and Roy Prangle. "What Research Says About Psychomotor Function of the Retarded," Journal of Health Physical Education and Recreation, XXXVII (April, 1966), pp. 23-40.
- Stephens, J. M. Educational Psychology: The Study of Educational Growth. New York: Henry Holt and Company, 1951.
- Thorne, John. "Everybody's Problem. . . ," Journal of Health Physical Education and Recreation XXXVII, (April, 1966), pp. 23-40.