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A Comparison of a Traditional Physical Educcation Program to a Movement Exploration Program Involving Junior High School Socially Maladjusted and Emotionally Disturbed Students

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A COMPARISON OF A TRADITIONAL PHYSICAL EDUCATION PROGRAM TO A MOVEMENT EXPLORATION PROGRAM INVOLVING JUNIOR HIGH SCHOOL SOCIALLY MALADJUSTED AND EMOTIONALLY DISTURBED STUDENTS

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CHAPTER I

THE PROBLEM AND DEFINITION OF TERMS

The correlation between physical fitness and physiological development with social, emotional, and academic attitudes of school children is an important area of research in the field of education. However, the writer believes that the physical education programs for the socially maladjusted, emotionally disturbed, and other areas of special education have been neglected and can be improved. Until the turn of the century, education in the United States was based on the assumption that all children should be taught the same way without regard to individual differences. As time passes, more and more school districts are endeavoring to provide better instruction for the special education students, and more specifically, the socially maladjusted and emotionally disturbed students.

From the writer's observation and experience in working with the socially maladjusted junior high students, it is not unusual to find these students rejecting the regular P.E. program because of their poor self concepts and poor self images of their own physical physique. They often refuse to dress and undress or take part in the showers, seemingly because they feel self conscious and uncomfortable with

their peer group. It is important that the physical education design for these students be evaluated. Morse, of the School of Education at the University of Michigan, remarked on the need for research and benefit of play and physical education for the socially maladjusted and emotionally disturbed. He directed his statements to educators of the socially maladjusted and emotionally disturbed:

> Many of the children do not know how to enjoy play, and literally have to be taught wholesome play. The function of play is not intermittent freedom from the discipline of tasks, but a therapeutic and creative effort in itself (10:592).

The drive for research into the development of physical education and other such programs for the socially maladjusted and emotionally disturbed is a never-ending task, as stated by Morse:

> The program needs to include the elements which the regular schools find exciting to the pupils: organized sports, music, art, clubs, assemblies, and parties (10:593).

This study investigated one of the innovative approaches to the teaching of physical education termed "Movement Exploration," and attempted to analyze its effectiveness for socially maladjusted and emotionally disturbed students.

THE PROBLEM

Statement of the Problem

Educators have a responsibility to provide a physical education program for the socially maladjusted and emotionally disturbed. Some authorities recognize the problems and special handicaps of the

socially maladjusted and emotionally disturbed students and recommend experimental variations in teaching methods from traditional methodology. The purpose of this study was to determine whether or not a planned program of movement exploration would show an efficient way of improving the physical fitness and motor abilities of an experimental group of junior high school socially maladjusted and emotionally disturbed students. The experimental movement program was compared to a traditional program of physical education with a second group of socially maladjusted and emotionally disturbed junior high school students as a control.

It was hypothesized that there would be no significant difference in improvement of the physical fitness and motor performance of socially maladjusted and emotionally disturbed students involved in the movement exploration physical education program when compared to a group of socially maladjusted and emotionally disturbed students involved in a traditional physical education program with students from the "regular" classroom.

Purpose of the Study

The purpose of the study was:

1. To compare the movement exploration method of physical education instruction with the traditional physical education program.

2. To improve muscular strength of the socially maladjusted and emotionally disturbed students.

3. To improve cardiovascular efficiency and body endurance of socially maladjusted and emotionally disturbed students.

5. To improve motor skill performance of socially maladjusted and emotionally disturbed students.

While most educators are espousing to variations of the conventional methods of teaching in the regular classroom, little, if anything, has been done to vary the teaching of physical education. Physical education for the special education student, whatever his category, is an area of special concern since these special students are handicapped to a greater degree than their peers in the "normal" setting. This investigation was an attempt to furnish a rationale for changing the conventional methods of teaching physical education to the innovative methods of teaching physical education by incorporating the ideas of authorities in both education and physical education.

Limitations of the Study

The study was limited to the Northshore School District and the author's resident junior high school. It was further limited to the formulation of two groups: (1) the control group, composed of half the students in classes for the socially maladjusted and emotionally disturbed, and (2) the experimental group, composed of the remaining half of the students attending socially maladjusted and emotionally disturbed classes.

I.Q. was not a variable compared in the criterion. Three different intelligence tests had been administered to some, but not all of the subjects. The Lorge-Thorndike and Metropolitan Achievement Tests were administered in the fifth and sixth grades, respectively, while the Otis-Lennon Test was administered to some of the subjects in the eighth grade. In the writer's judgment, valid comparisons of data could not be made with respect to I.Q. scores, since the students in this study had been tested at various times and with different test instruments.

It was assumed that the variables of teacher bias and teacher differences would cancel out. That is, it would be equal in both situations. Teacher bias refers to each teacher in either the experimental or control programs promoting to their utmost ability their own particular program. Teacher differences has to do with the individual differences and individual teaching techniques of each teacher, whether involved with the experimental or control programs.

Junior high school seventh and eighth grade levels were used as a basis because neither grade level by itself had a sufficient number of students for meaningful comparisons.

This study was limited to the strength, endurance, and motor skill abilities of the two groups. The null hypothesis was accepted or rejected solely upon the basis of the results of these tests.

This study was limited to a seven-week period of instruction and one week of testing, beginning April 1, 1971, and ending June 1, 1971.

Significance of the Study

The results of this study may have significance to educators in that there is little available information concerned with physical education programs for the socially maladjusted and emotionally disturbed. It has been this writer's experience that the socially maladjusted and emotionally disturbed student is usually incorporated into the traditional physical education program with "normal" students. Educators today have an obligation to search for better methods of reaching and teaching all different student types. Furthermore, this investigation may provide insight into the suitability of the traditional physical education philosophy. The recognition of individual differences in all areas of teaching and recognition of the effects of motor skill development upon academic success, which are not completely known, do have a definite relationship, as is born out by research. The incorporation of a self-discovery and problem-solving technique in physical education could change behavior and behavior problems in the physical education setting or classroom and have a bearing upon future curriculum development.

The movement exploration physical education program in this study concentrates on where a student is physically and attempts to

move him up to a higher level in motor skill performance. Traditional physical education programs, unlike the movement exploration program, are often concerned with how the individual fits as a member of the group; while movement exploration is concerned with the individual as an individual.

DEFINITIONS OF TERMS

Experimental Group

The experimental group was composed of one-half the students in classes for socially maladjusted and emotionally disturbed students participating in the movement exploration physical education program at Kenmore Junior High School in the Northshore [Washington] School District.

Control Group

The control group was composed of the other half of the subjects in classes for socially maladjusted and emotionally disturbed students not participating in the experimental group, but participating in the traditional physical education program at Kenmore Junior High School in the Northshore [Washington] School District.

Movement Exploration Program

The movement exploration program consists of designated tasks put forth to the individual in developmental sequences that require

problem-solving techniques. These tasks contain many forms of "self discovery" techniques which let the student experiment with his body. The different ways of learning new motor skills by the student is of major importance. Most exercises in operation require only movement of the body, but some exercises require the use of athletic equipment. The student is challenged with a problem of body movement, but is not told directly how to solve it, hence the "problem solving approach."

Traditional Physical Education Program

The traditional physical education program is defined by the Washington State Physical Education Guide for use in the Washington State schools as:

> Physical Education is that part of general education which emphasizes a variety of motor experiences selected and taught with full regard for their values to the growth, development, and behavior of each individual (30:8).

The desired outcomes from the traditional physical education program are:

1. To develop and maintain maximum physical fitness for living.
2. To develop useful physical skills.
3. To develop social-emotional stability.
4. To enjoy wholesome physical recreation.

The above outcomes usually include physical conditioning exercises, skill drills, individual and team sports.

Muscular Endurance

Muscular endurance is defined as the ability of the muscles to sustain work for a determined length of time.

Muscular Strength

Muscular strength is defined as the maximum force that can be exerted in a single contraction.

Johnson Fundamental Skill Test

This test contains a battery of four sub-tests:

1. Zig-zag Run Test--measures speed, endurance, and agility.

2. Jump and Reach Test--measures flexion and extension of the legs.

3. Kicking Test--measures flexion, extension, hyperextension of the leg, and eye-foot coordination.

4. Throw and Catch Test--measures flexion, extension, rotation, abduction of the arms, legs, trunk, and accuracy of eye-hand coordination (21:94-99).

American Association for Health, Physical Education, and Recreation Youth Fitness Test

This test is designed to evaluate specific aspects of physical status, which helps in giving an overall picture of the young person's general fitness. The test contains a battery of seven test items designed to measure physical fitness of boys and girls in grades five through twelve.

1. Pull-Up and Flexed-Arm Hang (for girls). Measures flexion of the arms, contraction strength of the bicep muscles and shoulder girdle strength.

2. Sit-Up. Measures flexion and extension of the stomach, and contraction fitness of the rectus abdominis, internal and external oblique, psoas major and minor.

3. Shuttle Run. Measures speed of running change of direction.

4. Standing Broad Jump. Measures explosive muscle power of leg extensors.

5. Fifty Yard Dash. Measures running speed.

6. Softball Throw for Distance. Measures skill and coordination.

7. Six Hundred Yard Run-Walk. Measures running coordination and cardiovascular efficiency (1:7).

Social Maladjustment

Social maladjustment and emotional disturbance in children are not necessarily the same thing; however, there may be considerable overlaps between them. In Educating Exceptional Children, Kirk refers to social maladjustment as:

> Social maladjustment refers to behavior of children which is not within the range of the "culturally permissible" either at home, in school, or in the community (24:331).

Emotional Disturbance

For the purpose of this research project, the author accepted Pate's definition of emotional disturbance as "either being extremely withdrawn or acting out as to the point where mental health specialists would classify them as mentally ill. They are neurotic, if not psychotic" (13).

CHAPTER II

REVIEW OF LITERATURE

An individual who is physically fit, but has a poor image of himself or an unhealthy mental attitude, has a poor prognosis for future happiness. Today physical education programs must develop not only the physical factors, but also the emotional and intellectual factors as well. The American Medical Association and the American Association for Health, Physical Education, and Recreation has made statements encouraging today's educators to incorporate all elements of fitness for effective living in their school programs:

> . . . fitness for effective living implies freedom from disease; enough strength, agility, endurance, and skill to meet the demands of daily living; sufficient reserves to withstand ordinary stresses without causing harmful strain; and mental development and emotional adjustment appropriate to the maturity of the individual (3:42).

These two organizations concur that the performance of an individual is limited by the capacity of the individual's body systems, and that the upper limits an individual can achieve in fitness are determined mainly by heredity.

Considering the above statements, it is conflicting to note that most current physical education programs are group oriented instead of individual oriented. In special education, perhaps, this is most

evident in physical education, where the different handicaps denote an individual's difference from another student or from students in a "regular" setting.

EMOTIONALLY DISTURBED AND SOCIALLY MALADJUSTED CHILDREN

Emotional disturbance and social maladjustment is an encompassing term including such categories as neurological impairment, behavioral disorders, hyperactivity, phobias, neuroses, and psychoses. The most common causes of such emotional or social disorders are malnutrition, chemical imbalance, neurological disfunction, and psychologically determined factors. The environmental and psychological factors involved with emotional disturbance and social maladjustment are so numerous and theorized it is impossible to give any clear cut definitions of cause. For the reason above and the purpose of this endeavor, abnormality will be used as a definition in relation to emotional and social disturbance as defined in A Psychological Approach to Abnormal Behavior:

> . . . abnormality is the sort of deviance that calls for and sanctions the professional attention of psychiatrists, clinical psychologists, and other "mental health" professionals (32:1).

Children who are emotionally and socially maladjusted in a school setting experience difficulty getting along with people in general. They may be:

1. Aggressive, impetuous, get into difficulty with age mates, parents or teachers.

2. Shy, intimidated--do not make friends or gain little satisfaction from human relationships; and

3. Socialized delinquents--are well-adjusted to a delinquent environment. They may get into trouble with the law or retreat into serious maladjusted behavior patterns.

Findings significant for schools resulting from studies of the New York Youth Commission and the Ohio Commission on Children and Youth give some indication to the scope of the problem in determining appropriate programs for the emotionally and socially maladjusted. These two commissions pointed out that the degree of mental health problems, or emotional and social problems, vary significantly in various school systems. No real significant variation in the number of maladjusted children at various degrees have been established to date. However, it was found by the Ohio study that the fifth grade contained the largest number of emotionally and socially maladjusted students. Problems are especially acute among children too old for their grade placement. Maladjustment among slow learning pupils is greater than those of better than average intelligence and placement in a learning situation inappropriate for their maturity, ability, and achievement. One study found that maladjusted behavior in schools is associated less with disorganization in the family than with inappropriate classification and experience in schools. The Ohio study also found more acute problems among boys than girls (8).

The child who is most like his total group or peer group norm is least likely to be emotionally or socially maladjusted.

It has been estimated that 10 to 15 percent of the elementary school population have social, emotional, physical, and perceptual learning problems. A somewhat conservative estimate, almost one-third of the children who fail to benefit from a normal classroom could be termed socially or emotionally disturbed. In a larger study, 10 percent of the school children were found disturbed to the extent of needing psychiatric help. They identified only .5 percent so severely handicapped emotionally or socially that they needed intensive treatment or special placement (4).

Emotionally disturbed and socially maladjusted children have many characteristics. It is usually the teacher who is in the best position to recognize the early symptoms of emotional and social disturbances. A wise teacher is sensitive to the students who find themselves surrounded by or experiencing unwholesome and frustrating situations such as: social hazards, economic needs, inadequate academic aptitudes, low failing marks, serious physical handicaps, family mobility, school retardation, and conflicting cultures.

The teacher must be tuned in and sensitive to early signs and symptoms of behavior reaction suggesting potential emotional and social maladjustments. These behavioral reactions are usually shown by:

1. Children who are the "outsiders" not accepted by any group either socially or recreationally.

2. Boys who particularly need to feel accepted recreationally to demonstrate their physical strength and skills.

3. Children who are withdrawn and will not play with other children; those having feelings of being unloved, having been left out, unwanted.

4. Children who possess obvious neurotic traits such as: biting fingernails, grimacing, twitching eyes and mouth, excretary activity, crying, giggling, sniffling, throat clearing, making contortions, fidgeting, and thumb sucking.

5. Children who belong to hostility or cruelty, or bothersome groups.

6. Children who are over anxious to please or secure approval actions and who never make trouble.

7. Children who are chronic tardy offenders, persistently truant from home and school.

8. Children who possess belligerent attitudes and destructive, malicious bullying and cruel to animals.

9. Children who frequently hit other children, tease, annoy, cheat, lie or steal.

10. Children who are apprehensive, avoiding persons or things through over caution or timidity, easily frightened or fearful.

11. Children who in turn in their aggression inwardly upon themselves and become moody, sullen, depressed, suspicious, distrustful, unhappy, constantly daydreaming, and absent minded.

12. Children who are constantly in need of attention, praise, reassurance; those who lack confidence or have feelings of inferiority.

13. Children who show over-interest (for their age) in sex matters.

14. Children who show nonconformity to the patterns of appearance for their age group.

15. Children who possess an abnormal attachment to their mothers (17:328).

PROGRAMS FOR SOCIALLY MALADJUSTED AND EMOTIONALLY DISTURBED CHILDREN

A review of all available literature relating to the physical education programs for the socially maladjusted and the emotionally disturbed has led to the conclusion that very little published information exists describing special physical education programs for these students. It is this writer's belief that most physical education classes for the emotionally disturbed or socially maladjusted in the public schools of Washington either take the same physical education programs as "normal" students with "normal" students or take the same programs as a separate class in a watered down setting.

Numerous studies deal with perceptual-motor abilities of mentally retarded children, but few investigators have concerned themselves with the relationship between the existence of emotional disturbance, social maladjustment, and perceptual-psychomotor abilities and disabilities. Poindexter completed a three-year study in late 1969 on motor development and performance of emotionally disturbed students. As expected, it was found that the disturbed child reflects more deviations from the normal in developmental history, training, and behavior patterns. Emotionally disturbed youngsters seem to score less well than the "normal" age mates on measure of

strength, power, agility, coordination, balance, and speed. Poindexter points out the need for special physical education classes and flexibility in them:

> Special classes in psychomotor development should be provided. Because the disturbed child does reflect a motor performance deficit, he should be protected from more advanced performers for his safety as well as his behavior. A disturbed child must experience success, and a motor program in which he is made aware of his relative inability tends to create stress and disruptive behavior (which often takes the forms of withdrawal or aggression).
>
> Flexibility is required in program planning for the disturbed child is not in a static condition. His hourly experience and changing environment result in changes in his behavior and personality (31:71).

Contrary to general opinion, this study points out the "steam valve" theory, often used with "normal" children, in which a large amount of vigorous motor activities are encouraged to release aggression, hostility, and tensions, seems to be of little value for the disturbed or maladjusted. This type of activity seems to heighten general excitability, hostility, irritability, and confusion. It is also suggested that physical activity be alternated with quiet periods of perceptual task development.

Motor Development and Performance of Emotionally Disturbed Children has pointed out several suggestions for physical education and physical education activities for the disturbed or maladjusted.

> Activities should be included in the motor program which aid in perceptual development. Indications are that balance, agility, coordination, and manipulative skills are among the desired activities. Ball skills involving catching, throwing,

> kicking, and tracking (ocular) are desirable. Fitness development may be important for the weak child and for enhancing a child's concept of his body. Simple trampoline tasks encourage the child to free his body in space. Swimming has proved an important skill for development of contra lateral movement, relating to a new environment and using the body in a new spatial relationship (31:71-72).

In an article titled "Physical Education: A Substitute for Hyperactivity and Violence," Edson recommended low organized skills and games progressing to more difficult skills and games; demonstration and involvement are better than simply giving direction; and there should be immediate positive reinforcement to participants (14:79-81).

According to Davis, quoted in an article by Byrd on "Studies on the Psychological Values of Lifetime Sports":

> . . . exercises have social and psychological as well as physical values, but sports and physical activities should be adapted to meet the special needs of various kinds of mental illness. Where departure from reality is a major problem, exercises must be prescribed by the doctor that help to divert the sick person from pre-occupation with self into an external interest. He found also that when physical activity programs were put into operation in many hospitals for the mentally ill behavioral difficulties with the patients were greatly reduced (6:33).

With this in mind as educators it seems we should incorporate these types of programs before an individual becomes hospitalized.

There have been several studies relating information about special recreational and camping programs for the emotionally disturbed and socially maladjusted which usually contain special physical education programs for the children. Such a recreational program, as related to the behavior of emotionally disturbed and

socially maladjusted students, was reviewed in the 1969 Summer issue of Exceptional Children:

> . . . From our experience it appears that the positive payoff of recreational participation is so great that a sociorecreation program can not only provide an excellent medium for the development of physical and social skills but can also be a major program area for rechanneling deviant behavior (19:787).

Another study, also about special camp programs for the emotionally disturbed, appeared in the January, 1968, issue of Exceptional Children. Their findings were similar to the above study.

> . . . All children benefit from the school camp experience in some way, as shown by changed home and school behavior. Changes were evident in more realistic levels of aspiration, greater self confidence, increased ability to communicate socially with peers, acquisition of new interests, better attitudes toward discipline, a higher degree of cooperation, increased participation, and higher academic achievement. Furthermore, practical suggestions based on camp reports were useful to teachers. However, to be of maximum benefit there should be regular follow up consultation and assistance from the educators and the mental health team involved in the project (29:353).

MOVEMENT EXPLORATION

At no point in history is the need for providing for the individual needs of children more apparent than at the present time. The development of the talent to perform to one's best ability in physical activities is also of importance at this time. With physical activities there is a bond between all ages. The correlation between physical fitness, activities, and physiological development with social,

emotional, and academic attitudes of school children was and is an important area of research in the field of education.

In a Research Quarterly article entitled "The Challenge of Movement Education," Deach explains movement as a definition of life.

> . . . Movement has been inherent and always will be inherent in life. It may be utilitarian, purposeful, random, or specific, an art form, a form of play; it is imbedded in one's personality and therefore is an outgoing expression of personality (11:92).

Movement is a part of man's everyday experience since the beginning of primitive man. Movement not only involves play but work, expression of different emotions, gathering of food, and religion. Movement is inherent at birth and stays with man until death. In Success Through Play, Kephart states:

> When the child is experimenting with his basic movement patterns, he refers all movement to the center of his body as the zero point. Thus the young infant in his crib moves both arms at once toward or away from the center of his body. These movement patterns, for the most part, do not overlap. They come to the child as separate directions on each side of the mid-line (23).

The history of movement is simply a matter of changing the philosophies and programs of physical education in the United States. We have changed our emphasis from rigidly structured programs of gymnastics, calisthenics, folk dance, and simple games stressing physical fitness to carry-over activities that develop recreational and social values through participation. Leaders in the change were Dewey, Wood, Williams, H'Doubler, and Lasalle. With World War II over and

new ideas such as problem solving, creative thinking, inquiry method, individual instruction, and creative teaching and learning, physical educators began to acquire and incorporate these ideas into their physical education realm (27:26).

It is generally agreed that movement is the foundation upon which all the activity areas of physical education are based. The basic aim of movement is to help children become aware of their own potential for moving effectively in a life situation. Fundamentals of movement are built upon so that the child develops an awareness of his body and body parts as it moves through space, with variations in time and force. The child solves problems dealing with gravity, direction, and controlling objects. Efficient and effective movement are results within the innate capacity of each child. Each individual is limited, however, only by his inherited potential.

The program consists of all those experiences that will assist the child to develop a skill in using his body--stretching, twisting, rolling, jumping, hanging, running, walking, pulling, pushing, sliding, hopping, catching, throwing, striking, kicking, and many other such movements and combination of movements. These may or may not be chosen for specific skill or athletic trainings. The use of equipment is fundamental in experiencing a basis for skill games. Such equipment as bean bags, balls, ropes, hoops, paddles, stilts, climbing apparatus, hanging apparatus, jumping apparatus, and gymnastic

apparatus may be used. The incorporation of dance with emphasis on rhythm, timing, tone, and design are easily fostered.

Problem solving and the move toward discovery are intimately related to the movement content. Problem solving is involved by learning how to handle the body. Sometimes the problem proposed by the teacher involves pure exploration by the child, thus the solution being largely discovery.

The value to children of a movement program may be summarized as follows:

1. Success is within the reach of every child because the goals are personal.

2. Self-discipline and self-direction are expected results.

3. The situation provides a laboratory for freedom to create, express, and to try out one's own solutions without fear of being a loser.

4. When game elements are added the child is ready for the challenge because he has attained a comfortable degree of skill.

5. Although children are serious and involved in the teaching-learning situation, satisfaction and fun result.

Many authorities recently have been advocating fundamental movement concepts in physical education programs. During the 1961 A.A.H.P.E.R. Convention, Chase along with Johnson directed one of the first concerns toward movement education. Chase described her

experience in using dance as a therapy for adult mental patients. Johnson described his work as a director in a Children's Physical Developmental Clinic:

> The usual educational approach is through verbal symbols, that is, through the intellect. But these are children who are emotionally disturbed, who have orthopedic problems, who are mentally retarded, who have emotional-social level problems . . . . The child is not in the intellectual-verbal world in which most adult learning occurs. He lives in a world of movement and feeling. In the clinic he is approached in terms of movement; he is approached where he lives (7:31).

Chase also commented on the participation of adult mental patients in the dance movement program with other individuals. She explained that changes of mood take place during the dance situation and verbal conversation develops (7:56).

At this time, forms of the movement exploration program are being used in some schools throughout the country. Although some schools in the United States and Canada have adopted some concepts of movement, there are few schools which have explored its possibilities in its entirety. A review of all available literature has revealed no published studies available regarding the use of the movement programs as compared to a traditional teaching method either with emotionally disturbed, socially maladjusted, or students from regular classrooms. However, Lanegan has done a study regarding movement versus traditional methodology in physical education with junior high school mentally retarded students in Ellensburg, Washington. He found that a movement program could be just as easily incorporated in

a physical education setting for the retarded as a traditional program and that the movement group did not improve significantly over the traditional group, thus his null hypothesis was accepted (25:77).

Philosophy of the Program

Movement in motor activity begins with birth. The child moves such motor activities as rolling, reaching, creeping, crawling, walking, running, galloping, skipping, jumping, balancing, and turning. Many different toys, equipment, and games are used in the child's acquiring these motor skills. Not only is movement life, but life concerns itself with self-direction, observation, reactions, decision-making, and building of one's concepts. Unless a child can learn to face and understand his strengths and weaknesses and look upon himself with respect and confidence, he cannot use the ability he has and achieve up to his full capacity (16:120).

The philosophy of the movement program has been outlined by Diem in three basic stages:

1. discover the movement readiness characteristics of the child's stage of development.

2. prepare the environment so that the child can without undue hazard exercise this readiness at will.

3. challenge the child with additional related tasks designed to ensure maximal diversification and development of this readiness (12:4).

Outline of the Program

The outline of the movement program is brief and only general. An individual should understand these basic concepts of time (quick, slow, accelerate, decelerate); force (strong, light, heavy); direction (forward, backwards, sideways, upwards, downwards); shape of the body (large, small, wide, long); level (high, low, medium); flow (broken, continuous).

Objectives

The general objectives of the movement program are related to the five values received by the children involved:

1. To succeed is within the reach of every child because the goals are personal.
2. To have self-discipline and self-direction.
3. To provide a laboratory for freedom to create, express, and to try out one's own solutions without fear of being a lower.
4. To be ready and comfortable for the challenge of new games skills added because of previous attainment of leadup skills.
5. To provide a realm and sense of fun and satisfaction.

General Principles

The main overall goal of the movement program encompasses all aspects of movement of people. The program's specific goals are those that pertain to particular rhythms, dances, sports, and gymnastics.

The program emphasizes these learning phases for children in the program:

1. How to move in relation to oneself.
2. How to move in relation to others.
3. How to move in relation to space.
4. How to move in relation to a moving object.
5. How to move in relation to moving an object.

General principles as a guide for the teacher in a movement program could be as follows:

1. Try to develop strength, flexibility, endurance, balance, and coordination.
2. Try to exercise all the major parts of the body (trunk, legs, arms, feet, and shoulders).
3. Try to utilize as much equipment as possible when needed (jump ropes, balls, etc.).
4. Look around for new materials you can utilize.
5. Encourage experimentation and expect a full out effort.
6. Make activities purposeful, enjoyable, challenging, and suitable to the growth patterns and needs of the age group.
7. Do not teach by demonstration only. Let students learn by trial and error.
8. Try to engage in activity for as many children as possible during a full lesson (12).

Under this influence of a movement program children will have an opportunity to reach accomplished skills. This is accomplished since motor skills are presented in the form of sequential tasks. These

sequential tasks allow the child to discover and create at his own pace.

Comparisons between movement exploration and conventional methods are denoted as follows:

1. The recognition of the fact that the use of activity based on grade level or chronological age is unreliable and that the program must allow for variation in physique, ability, and interest at all ages.

2. The need for less formality.

3. The freer use of space in lieu of the common "four straight lines" and other formal class formations.

4. The elimination of waiting for turns and in its place an active involvement of each child in the activity.

5. Individual standard of performance based on the ability and accomplishment of each child.

6. The use of greater variety of equipment and the provision that each child has a piece of equipment to use for experimentation, exploration, and discovery.

7. The high development of awareness of the environment, of the individual self, and how the individual can use movement in a variety of ways. The inherent potentialities of the individual are released through the activity (22).

Physical Movement

Movement could not take place without the complex network of nerve tissue and muscle fibers. The nerve supply to the skeletal muscle stems from the spinal nerves which are composed of motor and sensory fibers. Each motor nerve originates in a separate cell in the spinal cord and then subdivides, sending branches to the single muscle

fibers which in turn contract in response to the stimuli from the motor nerves. The impulses concerned with the sensing of a position or movement of body parts are conveyed to the central nervous system by the sensory nerves. Control of the movement comes from the upper motor neurons in the cortex of the brain. Repetition strengthens these pathways and permits movement to be made with lessened or no conscious effort. When this fact is related to movement exploration or remedial physical education, it is clear that good posture, neuro-muscular coordination, and body mechanics will be enhanced by repetitive exercise (5).

Muscles may perform separately, in pairs, or in groups. Motion is produced by joint action as a direct result of muscle contraction. The movements produced are flexion, extension, abduction, adduction, rotation, and circumduction.

Muscles that pass over one joint and pull the moving bone toward the fixed one are known as one-joint muscles. An example of this type of muscle action is the flexing of the hip joint in which the pelvis is fixed while the femur is pulled forward by the contraction of the ilio-psoas.

Muscles that cross two joints are known as two-joint muscles. An example of this type of muscle is the gastronemius which assists in knee flexion and in extension of the ankle.

Muscles have a specific task to perform in the synchronization of bodily movements. The muscles responsible for desired movement in a particular joint are termed the prime movers; the other muscles which assist in the action are known are assistant movers. For many of our movements to be reasonably effective, still another muscle or group must serve to fix certain other body parts, because without such fixation, localization and vigor are either impossible or greatly reduced.

Antagonistic muscles are those which act as opposition to others, e.g., the bicepts which flex the elbow and the tricepts which extend it. As one muscle contracts, its antagonist relaxes and thus permits movement. For efficient execution of our important physical movements, without undue waste of effort, it is important that antagonistic muscles have mutually equal strength and length. The two muscle groups just mentioned above in the spastic child are not in conjunction when they work. In other words, the nerve impulse fires both groups to contract together instead of separately (9).

The only way to develop and maintain adequate muscle and coordination strength is by vigorous muscle contraction. Further, to acquire increase in strength it is necessary progressively to increase the intensity of the activity periodically.

For the development of muscle strength, the overload principle should be applied. There are several ways in which this can be accomplished. The most efficient method is by the application

of progressive resistance. Some examples, in general terms, are the use of a long lever, the pull of gravity, tension applied by springs or weights, and resistance applied by an assistant. The amount of resistance used, of course, must be carefully supervised by the physical education teacher so that muscle strains are avoided.

When resistive apparatus is used, each participant must work according to his own capacity. While some people can exercise for prolonged periods of time, others tire more easily and must rest frequently. Consequently, the teacher must become acquainted with the capacity of each individual.

To develop endurance in specific body parts, it is necessary to repeat the appropriate exercise to the point of reasonable fatigue; to increase such endurance, the number of repetitions must be increased periodically in accordance with the status of the individual; and to retain the degree of acquired endurance, the duration of the repetitions must be maintained regularly (26).

Current Trends in Movement

Movement programs and movement training programs are being implemented throughout the United States; thus we are becoming more aware of its benefits. Research is still scanty regarding the success or failure of the program thus far. The job or skills one prepares for today may be obsolete tomorrow. The Physical Education Division of the American Association for Health, Physical Education, and Recreation

has stated:

> In physical education, too, children are now dealing with the concepts, symbols, and skills of movement experienced in ways that could not have been foreseen a generation ago. Today's physical education is the subject in which children learn to move as they move to learn (2).

Play

Play is not only inherent in man's nature, but a by-product of his interaction with his environment and nature. Play is both a therapeutic and creative effort as stated in Johnson's Education of Exceptional Children and Youth:

> There is a vast difference between "recess" and "play" as used in special education. Many of the children do not know how to enjoy play, and literally have to be taught wholesome play. The function of play is not intermittent freedom from the discipline of tasks, but a therapeutic and creative effort in itself (10:592).

Play is used as an aid in dealing with mental health patients and children, as stated by Erickson in Child and Society:

> Play has powerful potentials. In nurseries for schizophrenic children, for example, the play of a few normal "control" children may start the cycle of recovery. Through play the child experiments with self-control, with control of his environment, with fantasy, and with legitimate disregard of reality (15:397).

Gump and Sutton-Smith discuss play therapy as a release of tension:

> Play therapy is based upon the reconstructive nature of play. The motor components are useful channels of tension release. Play and games, free and structured, offer many opportunities for self and social learning (20:755).

Immature children tend to be discipline problems and thus they lose their free or play time as punishment. Because of this and other factors they do not know how to use their free time constructively and must be taught how to use it. Movement can produce a relative idea of "self" to the child.

> Play, movement, dance, drama, etc., have been valued for their aesthetic traits, and therapeutic role content: they also would appear to help in the formation of an intellectual image of self and as such form part of the physical basis of personality (28:85).

CHAPTER III

METHODS AND PROCEDURES

The reason for this study was to test the following null hypothesis:

> There will be no significant difference in improvement of the physical fitness and motor performance of socially maladjusted and emotionally disturbed students involved in the movement exploration physical education program when compared to a group of socially maladjusted and emotionally disturbed students involved in a traditional physical education program with students from the "regular" classroom.

To accomplish the above purpose, two groups of emotionally disturbed, socially maladjusted children were selected--one for an experimental group and one for the control group. This chapter outlines the selection of testing instruments, the selection of subjects, the description of the programs, and the methods of analysis.

SELECTION OF TESTING INSTRUMENTS

Specific purposes of this research topic are:

1. To improve general physical fitness and motor skill abilities.
2. To provide a rationale and methodology for teaching movement exploration in a physical education setting.
3. To determine whether or not a method of teaching physical education can incorporate a method other than the traditional method and still be effective.

A test measuring physical fitness and a test measuring fundamental motor skills were chosen to test participants in the study and to achieve the above stated purposes.

Johnson Fundamental Skills Test

The Johnson Fundamental Skills Test was given to both groups to determine an increase or decrease in motor skill growth. This test was used because the directions can be easily understood by students and because of the ease of administering the test.

Students were tested at the beginning and end of the investigation in the following areas: (1) zig-zag run, (2) jump and reach test, (3) kicking test, and (4) throwing and catching test. Raw scores obtained from pre- and post-testing were used for an analysis of each student's increase or decrease of growth in motor skill ability. The norms established by the Johnson test are for elementary school age children. Because of the slow development of motor skills of disturbed children, this writer thought it pertinent as a testing device (21:94-99).

American Association for Health, Physical Education, and Recreation Youth Fitness Test

This test is known as the A.A.H.P.E.R. Fitness Test and will be referred to as such throughout this study. The A.A.H.P.E.R. test is a national test and has national norms based on age, height, weight, and sex of participants. This test measures overall general

physical fitness of participants and is nearer the norm in regard to "normal" students than special education students. The test includes the following seven items from which the participants' raw scores were used: (1) pull up (with flexed-arm hand for girls), (2) sit up, (3) shuttle run, (4) standing broad jump, (5) 50-yard dash, (6) softball throw for distance, and (7) 600-yard run walk.

Pre- and post-tests were given at the beginning and end of the study. Participants are given a classification exponent based on age, height, weight, and sex. With scoring on test items and the classification exponent, it is possible to compare individual scores with national norms if deemed necessary (1).

SELECTION OF SUBJECTS

The first step involved with the study was to obtain permission from the administration of the Northshore School District. After this was done, an experimental and control group were established from pre-test results.

Analysis of the pre-test results indicate no significant difference at the .05 level of confidence between the experimental and control groups. Thus it was assumed that any difference found at the end of the study could be attributed to the experimental methods.

The experimental group participated in the movement exploration program taught by the writer. The control group participated with

"normal" students in regular physical education classes taught by the physical education staff at Kenmore Junior High School. No attempt was made to equate groups according to I.Q., as this information was not available to the writer.

Only three of the thirty-nine subjects in this study were girls; one was assigned to the control group and two to the experimental group.

The variables of age, height, and weight were combined by means of the classification index found in the test manual of the A.A. H.P.E.R. Fitness Test. Difference between means of the experimental and control groups were compared by t ratio as applied to uncorrelated groups (1). This was done as specified by Garrett (18). (See Table 1.)

Table 1

Comparison of Control and Experimental Groups on Pre-Test Results of AAHPER Fitness Test

Group	M_1	Diff.	SE_D	df	t
Experimental	29.75	.23	2.66	27	.086
Control	29.52				

The experimental group mean was 29.75 with a standard deviation of 7.73. The control group mean was 29.52 with a standard deviation of 8.44. The standard error of the mean for the experimental group was 1.77 compared to 1.99 for the control group. The mean difference

between the experimental and control groups was .23. The standard error of the difference between means was 2.66. This resulted in a t ratio of .086 which shows no significant difference for either group at the .05 level of confidence.

The study ran from April 1, 1971, through June 1, 1971.

PROCEDURES AND DESCRIPTION OF THE PROGRAMS

Experimental Group

The experimental group was composed of ten seventh grade and ten eighth grade emotionally disturbed, socially maladjusted students, chosen by pre-test results. They participated in an eight-week program of movement exploration from April 1 through June 1, 1971. Approximately thirty to forty-five minutes per day of movement was given the twenty students in two sessions. The movement program contained spacial orientation, agility, speed, flexibility, basic rhythms, eye-hand coordination, foot-eye coordination, balance, strength, endurance, advanced rhythms, and a combination of all these factors. Both boys and girls were analyzed together.

Control Group

The control group was comprised of nine seventh grade and ten eighth grade emotionally disturbed, socially maladjusted students, chosen by pre-test results. They participated in an eight-week period of a traditional or conventional physical education program from April 1

through June 1, 1971. Students were assigned to boys' or girls' classes as appropriate and were taught by both male and female members of the Kenmore Junior High Physical Education staff. Classes were scheduled at various times throughout the day and were approximately thirty to forty-five minutes in length. Activities for the control group included gymnastics, track, softball, tennis, wrestling, basketball, soccer, field hockey, and some co-educational activities. Both boys and girls were analyzed together.

METHODS OF ANALYSIS

During the eight-week study period, pre- and post-tests were administered to both groups. In order to analyze the change in scores from the A.A.H.P.E.R. Youth Test and the Johnson Fundamental Skills Test, each group's T_1 test scores were compared to their own T_2 scores by means of the t ratio for correlated groups.

Inter-group comparisons were made by comparing pre- and post-test means between both groups. The difference between scores on inter-group comparisons were found using the t ratio applied to small groups, as specified by Garrett (18):

$$M = \frac{\Sigma X}{N} \tag{1}$$

$$SD = \sqrt{\frac{\Sigma X^2}{N} - M^2} \tag{2}$$

Uncorrelated:

$$\text{SEm diff} = \sqrt{\sigma m_1^2 + \sigma m_2^2} \qquad (3)$$

Correlated:

$$\text{SEm diff} = \sqrt{\sigma m_1^2 + \sigma m_2^2 - 2(r)\ \sigma m_1)(\sigma m_2)} \qquad (4)$$

$$t = \frac{\text{Diff } (M_1 - M_2)}{\sqrt{SE_M \text{ diff}}} \qquad (5)$$

CHAPTER IV

ANALYSIS OF THE DATA

The purpose of this study was to (1) ascertain whether or not a method of teaching physical education other than by the traditional method would be effective, (2) to provide a rationale for teaching physical education using the movement exploration approach, and (3) to improve the cardiovascular efficiency, strength, and motor skill abilities of the emotionally disturbed and socially maladjusted.

For purposes of accomplishing these objectives, an experimental group of emotionally disturbed and socially maladjusted students, participating in a movement program, were compared with a control group of emotionally disturbed and socially maladjusted students, participating in a traditional physical education program with regular students in the junior high school. The two groups were described in Chapter III. Both groups were studied in the Northshore District at Kenmore Junior High School. The statistical comparisons were based upon T_1 and T_2 scores.

The study was concerned only with positive changes resulting from participating in physical education programs, thus the $\underline{t}$ ratio test was used to test the significance of change.

JOHNSON FUNDAMENTAL SKILLS TEST RESULTS

The analysis of the motor skills improvement within each group was made by comparing the mean T_1 scores of each group with their own T_2 means. Statistical analyses were made by using the *t* ratio test for the significance of the difference between means of correlated groups, as specified by Garrett (15).

Experimental Group--Movement Exploration (N = 20)

Zig-zag test. The mean on T_1 was 8.8 with a standard deviation of .65. The mean on T_2 was 8.2 with a standard deviation of .92. The standard error of the mean on T_1 was .15 and .21 for T_2. There was a mean difference between T_1 and T_2 of .57. The standard error of the difference between means was .26. This resulted in a *t* ratio of 2.19 which was significant at the .05 level of confidence.

Jump and reach. The mean on T_1 was 12.2 with a standard deviation of 2.29. The mean on T_2 was 13.3 with a standard deviation of 2.59. The standard error of the mean of T_1 was .53 and .60 for T_2. There was a mean difference between T_1 and T_2 of 1.1. The standard error of the difference between the means was .80. This resulted in a *t* ratio of 1.38 which was not significant at the .05 level of confidence.

Kick. The mean on T_1 was 31.6 with a standard deviation of 3.35. The mean on T_2 was 32.6 with a standard deviation of 4.12. The

standard error of the mean of T_1 was .77 and .95 for T_2. There was a mean difference between T_1 and T_2 of 1.0. The standard error of the difference between means was 1.22. This resulted in a *t* ratio of .82 which was not significant at the .05 level of confidence.

Throw and catch. The mean on T_1 was 42.8 with a standard deviation of 3.86. The mean on T_2 was 44.1 with a standard deviation of 3.91. The standard error of the mean of T_1 was .89 and .90 for T_2. There was a mean difference between T_1 and T_2 of 1.3. The standard error of the difference between means was 1.26. This resulted in a *t* ratio of 1.03 which was not significant at the .05 level of confidence.

Table 2 shows the gains made by the experimental group on all four tests in the Johnson Fundamental Skills Battery.

Table 2

Amount and Significance of Change in Four Johnson Fundamental Skills Tests: Movement Group

Test	M_1	M_2	Diff.	SE_D	df	*t*
Zig-Zag	8.8	8.2	.5	.26	19	2.19*
Jump and Reach	12.2	13.3	1.1	.80	19	1.38
Kick	31.6	32.6	1.0	1.22	19	.82
Throw and Catch	42.8	44.1	1.3	1.26	19	1.03

*Significant at the .05 level of confidence

Control Group--Traditional (N = 19)

Zig-zag. The mean on T_1 was 9.1 with a standard deviation of .68. The mean on T_2 was 8.6 with a standard deviation of .80. The standard error of the mean of T_1 was .16 and .19 for T_2. There was a mean difference between T_1 and T_2 of .50. The standard error of the difference between means was .27. This resulted in a *t* ratio of 1.85 which was not significant at the .05 level of confidence.

Jump and Reach. The mean on T_1 was 12.29 with a standard deviation of 2.56. The mean for T_2 was 13.03 with a standard deviation of 3.03. The standard of error of the mean of T_1 was .60 and .72 for T_2. There was a mean difference between T_1 and T_2 of .74. The standard error of the difference between means was .94. This resulted in a *t* ratio of .79 which was not significant at the .05 level of confidence.

Kick. The mean on T_1 was 31.26 with a standard deviation of 3.67. The mean on T_2 was 33.53 with a standard deviation of 4.72. The standard error of the mean of T_1 was .87 and 1.11 for T_2. There was a mean difference between T_1 and T_2 of 1.27. The standard error of the difference between means was 1.38. This resulted in a *t* ratio of .92 which was not significant at the .05 level of confidence.

Throw and catch. The mean on T_1 was 41.95 with a standard deviation of 4.07. The mean on T_2 was 42.05 with a standard deviation of 4.38. The standard error of the mean on T_1 was .96 and 1.03 for T_2. There was a mean difference between T_1 and T_2 of .10. The standard error of the difference between means was 1.41. This resulted in a *t* ratio of .70 which was not significant at the .05 level of confidence.

Table 3 depicts the results of the pre- and post-test scores on each of the four tests in the Johnson Fundamental Skills Test for the control group.

Table 3

Amount and Significance of Change in Four Johnson Fundamental Skills Tests: Traditional Group

Test	M_1	M_2	Diff	SE_D	df	*t*
Zig-zag	9.1	8.6	.50	.27	18	1.85
Jump and Reach	12.29	13.03	.74	.94	18	.79
Kick	32.26	33.53	1.27	1.38	18	.92
Throw and Catch	41.95	42.05	.10	1.41	18	.70

Inter-Group Comparisons

The T_1 and T_2 means for each of the two groups on each of the four tests in the Johnson Battery were analyzed for significance of difference by use of the *t* ratio for uncorrelated groups. Results are shown in Table 4.

Table 4

Inter-Group Comparisons

Test		Exp.	Cont.	Diff.	SE_D	t
Zig-Zag	T_1	8.8	9.1	-.3	.22	1.36
	T_2	8.2	8.6	-.4	.28	1.32
Jump and Reach	T_1	12.2	12.29	-.09	.80	.11
	T_2	13.3	13.03	.27	.94	.31
Kick	T_1	31.6	31.26	.34	1.16	.29
	T_2	32.6	33.53	.07	1.46	.64
Throw and Catch	T_1	42.8	41.95	.85	1.31	.65
	T_2	44.1	42.05	2.05	1.37	1.50

Zig-zag. The comparison of both groups on the zig-zag test shows that the experimental group had a T_1 mean of 8.8 and a T_2 mean of 8.2 which indicates a mean difference of .57. The control group had a T_1 mean of 9.1 and a T_2 mean of 8.6 which shows a mean difference of .50; thus, the experimental group shows a mean increase of .07 more than the control group. The standard error of the difference between means in the pre-tests of each group was .22. This resulted in a t ratio of 1.36 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests of each group was .28. This resulted in a t ratio of 1.32 which was not significant at the .05 level of confidence.

Jump and reach. A comparison of both groups on the jump and reach test shows that the experimental group had a T_1 mean of 12.2 and a T_2 mean of 13.3, showing a mean difference of 1.1. The control group had a T_1 mean of 12.29 and a T_2 mean of 13.03, which shows a mean difference of .74. The experimental group had a mean increase of .36 above that of the control group. The standard error of the difference between means in the pre-tests of each group was .80. This resulted in a *t* ratio of .11 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests of each group was .94. This resulted in a *t* ratio of .31 which was not significant at the .05 level of confidence.

Kick. The experimental group had a T_1 mean of 31.6 and a T_2 mean of 32.6, which shows a mean difference of 1.0. The control group had a T_1 mean of 31.26 and a T_2 mean of 33.53, which shows a mean difference of 1.27. The control group had a mean increase of .27 above that of the experimental group. The standard error of the difference between means in the pre-tests of each group was 1.16. This resulted in a *t* ratio of .29 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests of each group was 1.46. This resulted in a *t* ratio of .64 which was not significant at the .05 level of confidence.

Throw and catch. A comparison of both groups on the throw and catch test shows that the experimental group had a T_1 mean of 42.8 and a T_2 mean of 44.1, which shows a mean difference of 1.3. The control group had a T_1 mean of 41.95 and a T_2 mean of 42.05, which shows a mean difference of .10. Thus, the experimental group had a mean increase of 1.2 above that of the control group. The standard error of the difference between means in the pre-tests of the group was 1.31. This resulted in a t ratio of .65 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests of each group was 1.37. This resulted in a t ratio of 1.50, which was not significant at the .05 level of confidence.

A.A.H.P.E.R. TEST RESULTS

The analysis of the A.A.H.P.E.R. changes within each group were made by comparing mean T_1 scores of each group with their own T_2 means. Statistical analyses were made by using the t ratio test for the significance of the difference between means of correlated groups, as specified by Garrett (15).

Experimental Group--Movement Exploration (N = 20)

Table 5 shows the gains made by the experimental movement group on all seven tests in the A.A.H.P.E.R. Battery.

Table 5

Amount and Significance of Change in Seven A.A.H.P.E.R. Fitness Tests: Movement Group

Test	M_1	M_2	Diff.	SE_D	df	t
Pull Up	5.15	7.55	2.40	1.44	19	1.67
Sit Up	61.3	79.45	18.15	9.10	19	1.99
Shuttle Run	10.8	10.5	.34	.36	19	.94
Standing Broad Jump	67.3	72.75	5.45	2.98	19	1.83
50 Yard Dash	7.7	7.3	.35	.25	19	1.40
Softball Throw	135.35	146.35	11.0	7.52	19	1.46
600 Yard Run	134.5	117.8	16.7	11.04	19	1.51

Pull Up. The mean on T_1 was 5.15 with a standard deviation of 4.02. The mean on T_2 was 7.55 with a standard deviation of 4.80. The standard error of the mean on T_1 was .92 and 1.10 for T_2. There was a mean difference between T_1 and T_2 of 2.40. The standard error of the difference between means was 1.44. This resulted in a t ratio of 1.67 which was not significant at the .05 level of confidence.

Sit Up. The mean on T_1 was 61.3 with a standard deviation of 29.80. The mean on T_2 was 79.45 with a standard deviation of 26.08. The standard error of the mean difference of T_1 was 6.85 and 5.99 for T_2. There was a mean difference between T_1 and T_2 of 18.15. The standard error of the difference between means was 9.10. This

resulted in a t ratio of 1.99 which was not significant at the .05 level of confidence.

Shuttle run. The mean on T_1 was 10.8 with a standard deviation of 1.14. The mean on T_2 was 10.5 with a standard deviation of 1.1. The standard error of the mean on T_1 was .26 and .25 for T_2. There was a mean difference between T_1 and T_2 of .34. The standard error of the difference between means was .36. This resulted in a t ratio of .94 which was not significant at the .05 level of confidence.

Standing broad jump. The mean on T_1 was 67.3 with a standard deviation of 7.70. The mean on T_2 was 72.75 with a standard deviation of 10.38. The standard error of the mean T_1 was 1.79 and 2.39 for T_2. There was a mean difference between T_1 and T_2 of 5.45. The standard error of the difference between means was 2.98. This resulted in a t ratio of 1.83, which was not significant at the .05 level of confidence.

Fifty-yard dash. The mean on T_1 was 7.7 with a standard deviation of .76. The mean on T_2 was 7.3 with a standard deviation of .76. The standard error of the mean on T_1 was .18 and .18 for T_2. There was a mean difference between T_1 and T_2 was .35. The standard error of the difference between means was .25. This resulted in a t ratio of 1.4 which was not significant at the .05 level of confidence.

Softball throw. The mean for T_1 was 135.35 with a standard deviation of 19.78. The mean on T_2 was 146.35 with a standard deviation of 26.05. The standard error of the mean on T_1 was 4.55 and 5.99 for T_2. There was a mean difference between T_1 and T_2 of 11.0. The standard error of the difference between means was 7.52. This resulted in a t ratio of 1.46 which was not significant at the .05 level of confidence.

Six-hundred yard run. The mean for T_1 was 134.5 with a standard deviation of 28.36. The mean for T_2 was 117.8 with a standard deviation of 38.76. The standard error of the mean on T_1 was 6.52 and 8.91 for T_2. There was a mean difference between T_1 and T_2 of 16.7. The standard error of the difference between means was 11.04. This resulted in a t ratio of 1.51 which was not significant at the .05 level of confidence.

Control Group--Traditional (N = 19)

Table 6 depicts the results of the pre- and post-test scores on each of the seven tests in the A.A.H.P.E.R. Test Battery for the control group.

Pull up. The mean on T_1 was 4.21 with a standard deviation of 3.65. The mean on T_2 was 5.79 with a standard deviation of 4.45. The standard error of the mean on T_1 was .86 and 1.05 for T_2. There was a mean difference between T_1 and T_2 of 1.58. The standard error

of the difference between means was 1.36. This resulted in a t ratio of 1.16 which was not significant at the .05 level of confidence.

Table 6

Amount and Significance of Change in Seven A.A.H.P.E.R. Fitness Tests: Traditional Group

Test	M_1	M_2	Diff.	SE_D	df	t
Pull Up	4.21	5.79	1.58	1.36	18	1.16
Sit Up	64.63	85.32	20.69	9.25	18	2.24*
Shuttle Run	11.4	10.8	.60	.30	18	2.0
Standing Broad Jump	65.05	67.95	2.90	3.21	18	.9
50-Yard Dash	7.8	7.4	.37	.25	18	1.48
Softball Throw	122.26	131.05	8.79	11.63	18	.76
600-Yard Run	135.9	130.1	5.74	7.14	18	.80

*Significant at the .05 level of confidence

Sit up. The mean on T_1 was 64.63 with a standard deviation of 30.79. The mean on T_2 was 85.32 with a standard deviation of 24.22. The standard error of the mean on T_1 was 7.26 and 5.71 for T_2. There was a mean difference between T_1 and T_2 of 20.69. The standard deviation error of the difference between means was 9.25. This resulted in a t ratio of 2.24 which was significant at the .05 level of confidence.

Shuttle run. The mean on T_1 was 11.4 with a standard deviation of .99. The mean on T_2 was 10.8 with a standard deviation of .90. The standard error of the mean on T_1 was .23 and .21 for T_2. There was a mean difference between T_1 and T_2 of .60. The standard error of the difference between means was .30. This resulted in a *t* ratio of 2.0 which was not significant at the .05 level of confidence.

Standing broad jump. The mean on T_1 was 65.05 with a standard deviation of 8.39. The mean on T_2 was 67.95 with a standard deviation of 10.74. The standard error of the mean on T_1 was 1.98 and 2.53 for T_2. There was a mean difference between T_1 and T_2 of 2.90. The standard error of the difference between means was 3.21. This resulted in a *t* ratio of .90 which was not significant at the .05 level of confidence.

Fifty Yard Dash. The mean on T_1 was 7.8 with a standard deviation of .84. The mean on T_2 was 7.4 with a standard deviation of .57. The standard error of the mean on T_1 was .20 and .13 for T_2. There was a mean difference between T_1 and T_2 of .37. The standard error of the difference between means was .25. This resulted in a *t* ratio of 1.48 which was not significant at the .05 level of confidence.

Softball throw. The mean on T_1 was 122.26 with a standard deviation of 28.98. The mean on T_2 was 131.05 with a standard deviation of 39.88. The standard error of the mean on T_2 was 6.83

and 9.41 for T_2. There was a mean difference between T_1 and T_2 of 8.79. The standard error of the difference between means was 11.63. This resulted in a t ratio of .76 which was not significant at the .05 level of confidence.

Six hundred yard run. The mean on T_1 was 135.9 with a standard deviation of 22.70. The mean on T_2 was 130.1 with a standard deviation of 20.05. The standard error of the mean on T_1 was 5.35 and 4.73 for T_2. There was a mean difference between T_1 and T_2 of 5.74. The standard error of the difference between means was 7.14. This resulted in a t ratio of .80 which was not significant at the .05 level of confidence.

Inter-Group Comparisons

The T_1 and T_2 means for each of the two groups on each of the seven tests in the A.A.H.P.E.R. battery were analyzed for significance of the difference by use of the t ratio for uncorrelated groups. (See Table 7.)

Pull up. A comparison of both groups on the pull up test shows that the experimental group had a T_1 mean of 5.15 and a T_2 mean of 7.55, therefore showing a mean difference of 2.40. The control group had a T_1 mean of 4.21 and a T_2 mean of 5.79, which shows a mean difference of 1.58. The experimental group had a mean increase of .82 above that of the control group. The standard error of the

difference between means in the pre-tests of each group was 1.26. This resulted in a t ratio of .75 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests, of each group, was 1.52. This resulted in a t ratio of 1.16 which was not significant at the .05 level of confidence.

Table 7

A.A.H.P.E.R. Inter-Group Comparisons

Test		Exp.	Cont.	Diff.	SE_D	t
Pull Up	T_1	5.15	4.21	.94	1.26	.75
	T_2	7.55	5.79	1.76	1.52	1.16
Sit Up	T_1	61.30	64.63	-3.33	9.98	.33
	T_2	79.45	85.32	-5.87	8.27	.11
Shuttle Run	T_1	10.8	11.4	- .6	.35	1.54
	T_2	10.5	10.8	- .3	.33	.85
Standing Broad Jump	T_1	67.3	65.05	2.25	2.67	.84
	T_2	72.75	67.95	4.80	3.48	1.38
50 Yard Dash	T_1	7.7	7.8	- .1	.27	.33
	T_2	7.3	7.4	- .1	.22	.32
Softball Throw	T_1	135.05	122.26	12.79	8.21	1.59
	T_2	146.35	131.05	15.30	11.15	1.37
600 Yard Run	T_1	134.5	135.9	-1.4	8.43	.17
	T_2	117.8	130.1	12.3	10.9	1.13

Sit-up. The experimental group had a T_1 mean of 61.3 and a T_2 mean of 79.45, which shows a mean increase of 18.15. The control group had a T_1 mean of 64.63 and a T_2 mean of 85.32, which was a mean difference of 20.69. The control group had a mean increase of 2.54 above that of the experimental group. The standard error of the difference between means in the pre-tests of each group was 9.98. This resulted in a *t* ratio of .33 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests of each group was 8.27. This resulted in a *t* ratio of .11, which was not significant at the .05 level of confidence.

Shuttle run. The experimental group had a T_1 mean of 10.8 and a T_2 mean of 10.5, which shows a mean difference of .34. The control group had a T_1 mean of 11.4 and a T_2 mean of 10.8, which was a mean difference of .60. The control group had a mean increase of .26 above that of the experimental group. The standard error of the difference between means in the pre-tests of each group was .35. This resulted in a *t* ratio of 1.54 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests of each group was .33. This resulted in a *t* ratio of .85 which was not significant at the .05 level of confidence.

Standing broad jump. The experimental group had a T_1 mean of 67.3 and a T_2 mean of 72.75, which shows a mean difference of

5.45. The control group had a T_1 mean of 65.05 and a T_2 mean of 67.95, which shows a mean difference of 2.90. The experimental group had a mean increase of 2.55 above that of the control group. The standard error of the difference between means in the pre-tests of each group was 2.67. This resulted in a *t* ratio of .84 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests of each group was 3.48. This resulted in the *t* ratio of 1.38 which was not significant at the .05 level of confidence.

Fifty-yard dash. The experimental group had a T_1 mean of 7.7 and a T_2 mean of 7.3, which shows a mean difference of .35. The control group had a T_1 mean of 7.8 and a T_2 mean of 7.4, which shows a mean difference of .37. The control group had a mean increase of .02 above that of the experimental group. The standard error of the difference between means in the pre-tests of each group was .27. This resulted in a *t* ratio of .33 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests of each group was .22. This resulted in a *t* ratio of .32 which was not significant at the .05 level of confidence.

Softball throw. The experimental group had a T_1 mean of 135.35 and a T_2 mean of 146.35, which shows a mean difference of

8.79. The experimental group had a mean increase of 2.21 above that of the control group. The standard error of the difference between means in the pre-tests of each group was 8.21. This resulted in a t ratio of 1.59 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests of each group was 11.15. This resulted in a t ratio of 1.37 which was not significant at the .05 level of confidence.

Six-hundred yard run. The experimental group had a T_1 mean of 134.5 and a T_2 mean of 117.8, which shows a mean difference of 16.7. The control group had a T_1 mean of 135.9 and a T_2 mean of 130.1, which shows a mean difference of 5.74. The experimental group had a mean increase of 10.96 above that of the control group. The standard error of the difference between means in the pre-tests of each group was 8.43. This resulted in a t ratio of .17 which was not significant at the .05 level of confidence. The standard error of the difference between means in the post-tests of each group was 10.9. This resulted in a t ratio of 1.13 which was not significant at the .05 level of confidence.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

It was the writer's belief, based upon the evidence of published research, that the physical fitness program for emotionally disturbed, socially maladjusted, and other special education students has been neglected. Specific objectives of the study were to: (1) determine whether or not a method of teaching physical education other than by traditional means would be effective; (2) improve the strength, endurance, and motor skill abilities of special education students; and (3) provide a rationale for teaching physical education using the movement exploration approach.

The following null hypothesis was used for the statement of the problem under investigation:

> There will be no significant difference in improvement of the physical fitness and motor performance of socially maladjusted and emotionally disturbed students involved in the movement exploration physical education program when compared to a group of socially maladjusted and emotionally disturbed students involved in a traditional physical education program with students from the "regular" classroom.

The study was limited to an eight-week period from April 1 through June 1, 1971. Subjects used were socially maladjusted and emotionally disturbed students at Kenmore Junior High School in the Northshore [Washington] School District. The experimental group was composed of one-half the class for emotionally disturbed and socially maladjusted students participating in the movement exploration program. The control group was composed of the other half of the classes for socially maladjusted and emotionally disturbed students, not participating in the experimental group, but participating in the traditional physical education program.

The Johnson Fundamental Skills and the A.A.H.P.E.R. Fitness Test were used to measure levels of motor skill development and physical fitness, respectively. Pre- and post-tests were administered to both groups with changes in scores analyzed by the use of the *t* ratio, as based on Garrett's formulas.

CONCLUSIONS

Johnson Fundamental Skills Test Results

The experimental group, which participated in the movement program, improved in all areas of the test battery. However, only in the zig-zag test was the .05 level of confidence obtained. The analysis of this data was arrived at by application of Garrett's formula for correlated groups.

The control group, which participated in a traditional physical education program, improved in all areas of the test battery. However, none of the tests obtained the significance of a .05 level of confidence. The analysis of this data was arrived at by Garrett's formula for correlated groups.

Results of inter-group comparisons showed that increases in motor skill development by the experimental group were not significant when compared to the control group at the .05 level of confidence.

A.A.H.P.E.R. Fitness Test Results

The experimental group, which participated in the movement program, improved in all areas of the test battery. However, none of the tests obtained significance at the .05 level of confidence. This data was obtained by the use of Garrett's formula for correlated groups.

The control group, which participated in a traditional physical education program, improved in all areas of the test battery. However, in only the sit-up test was the .05 level of confidence obtained. The analysis of this data was arrived at by Garrett's formula for correlated groups.

Inter-group comparison results show that increases in physical fitness by the experimental group were not significant when compared to the control group at the .05 level of confidence.

The following conclusions are a result of this study:

1. The over-all increases made by the movement exploration group in fitness as well as motor skills shows that a program other than a traditional program can be effectively used in special education classes for the socially maladjusted and emotionally disturbed.

2. The increases in levels of physical fitness obtained by emotionally disturbed, socially maladjusted students in the traditional program, as well as those students in the movement exploration program, indicate that emotionally disturbed and socially maladjusted students can improve in strength and endurance under a planned, daily program of physical education.

3. The increases in levels of physical fitness and motor skills ability over the eight-week period, provide a rationale for utilizing the movement exploration program of special education students.

Since the experimental group using the movement exploration program did not improve significantly over the control group which was involved in a traditional program in either the Johnson Fundamental Skills Test or the A.A.H.P.E.R. Fitness Test, the null hypothesis stated at the onset of this study has been accepted. However, the analysis of the data indicates that a movement approach can be as effective as the traditional approach in teaching physical education to emotionally disturbed and socially maladjusted students. In the writer's opinion, some values in the movement program not evaluated by

statistics were: more pupil participation, simple games made up by the students, which carried over into lunch periods and after school, and the freedom of each student to try to do his own thing.

RECOMMENDATIONS

1. Additional research in the area of physical education programs for all types of special education students should be undertaken. The national norms for these students need to be established. Such research should encompass the utilization of a variety of testing measurements.

2. Colleges and universities, as indicated through a review of the current literature, should research and include classes in physical education for emotionally disturbed, socially maladjusted, and special education students in general.

3. Research comparing the benefits of movement exploration is needed, and can add insight into the use of a deviation from the traditional method of teaching physical education. Such research could indicate a comparison based upon a specific variable such as I.Q., etc. It is also recommended that a larger sample be used to compare movement exploration to traditional programs.

4. Educators should plan daily programs of physical education for the emotionally disturbed and socially maladjusted as well as for the "normal" student population.

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