

THE JUSTIFICATION OF A PHYSICAL EDUCATION PROGRAM IN GRADES K-3  
WITH EMPHASIS ON THE PREVENTION OF LEARNING DISABILITIES

by 6408

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## INTRODUCTION

### Introductory Statement

Is physical education in the elementary school a "frill" or "frosting on the cake" or is it basic to and prerequisite to all learning? One time Purdue psychologist, Newell Kephart, child development specialists Gesell, Piaget, and others, including Marianne Frostig, believe that inadequate motor development and coordination is a common cause of learning difficulties. As Florence E. Sutphin, Winter Haven Lions Research Foundation, Inc., has stated, "It is an accepted fact, established by neurologists, that the command a child has over his body is indicative of how well he might be expected to succeed academically." (9, p.2)

### Purpose

The purpose of this study is to point out the need for physical education programs with emphasis on prevention of learning disabilities at the elementary school level. In order to accomplish this purpose, movement education must be applied to the existing literature concerning learning disabilities. A preventative program is one which may be considered basic to success in the classroom and be available to all children as opposed to a remedial program. The remedial program is one which is set up on a referral basis in which the elementary schools refer the learning disabled child to an Education Service Unit on the basis of the child's inability to grasp basic learning concepts. Each child is referred by the child's own teachers and then tested by the Service Unit to point up individual weaknesses for correction.

### Method of Study

The basic method of study was library research using material from the library at Kansas State University and the Education Service Unit #5 located in Beatrice, Nebraska. This material was supplemented with interviews conducted with Ivan Stern, the director of Education Service Unit #5 and Victor Bade, the physical education instructor for elementary schools in Beatrice, Nebraska. The interviews were conducted February 19, 1971.

### Limitations

This study is limited to justifying and pointing out the need for a movement education program within the physical education department in grades K-3. The emphasis being on preventive learning disabilities.

### Definition of Terms

1. Agility - the ability to move the body through space and change direction.
2. Balance - the equality in weight. Used to pinpoint the center of gravity of the body.
3. Conceptualization - the ability to anticipate needs or consequences in a given problem situation, an understanding of the proposed problem.
4. Coordination - synchronized movement patterns.
5. Crossing-Over - crossing the mid-line or center line of the body with body extremities or with eyes.
6. Directionality - by experimenting with movement patterns directed toward objects in space, the child learns that to reach an object he must make a movement, for example, to the right, up, down, etc..
7. Dominance - preferred side (hand, foot, eye, ear) determined by cortical development.

8. Fine Motor Skills - smaller and more specialized muscle activity.
9. Gross Motor Skills - large muscle activity.
10. Kinesthetic - the sense of muscular activity. The sensation caused by stimulation of sensory-end organs in the muscles and joints.
11. Laterality - concept of left and right sidedness and the ability to control the two sides of the body separately and simultaneously. Bilaterality - both arms and both legs moving simultaneously. Cross Laterality - opposite arm and leg moving simultaneously. Homolaterality - same leg and arm moving simultaneously.
12. Maturation - to mature.
13. Motor Educatibility - capacity to learn.
14. Motor Fitness - capacity to perform.
15. Movement Education - the development of sensory-motor skills, self awareness, and creativity, culminating in a sense of well-being.
16. Neuromuscular - relationship of the nerves to the muscles, the development which depends upon the quality and quantity of use.
17. Patterning - sequential, neuromuscular development.
18. Perceptually Handicapped - lack of purposeful motor activity due to the inability to organize and interpret a situation based on sensory stimulation.
19. Spatial Orientation - relationship between self and outside objects and between objects. Must have a point of reference to stabilize functions and put outside objects into a proper perspective.
20. Vision - the comprehension and interpretation of what is seen.

#### ANALYSIS AND DISCUSSION

One of the more perplexing problems facing school people today is that of the increasing numbers of children in the school systems,

who have good or superior potential, but who have difficulty acquiring academic skills. Despite the excellent progress in curriculum development in the past years, there exists the paradoxical situation of children who cannot learn or have a difficult time learning, even though they are considered to be of average intelligence. These children are not primarily emotionally disturbed, although emotional problems may exist. They are not mentally retarded, but they are often found in one of the school's slower tracts or sections. They are not considered blind or deaf, but they may have visual and auditory problems of a nature that are not easily defined. These children are known as learning-disability children. Since case studies tend to indicate that their learning disability and the behavior deviations that sometimes accompany this problem are related to the central-nervous-system dysfunctions, they are sometimes referred to as "perceptually handicapped."

Studies show that school failure occurs early for these children, often in the first grade. Because fundamental, sequential development failed to occur, these children experience an inability to master basic developmental tasks.

Having failed at mastery of basic sensory-motor skills from infancy on, these children are unable to develop the readiness needed to help them cope with the formal demands of the classroom. The consequence is that with each successive year, the learning-disability child is caught in a cycle of mounting failure, which further magnifies his difficulties and distorts his development.

What is readiness? In attempting to understand learning readiness it is necessary to understand the development sequence stages of sensory-motor learning.

Such learning takes place in terms of a number of encounters between the organism and its environment. As a result of these encounters, information about the environment is generated and is systematically retained in the organism for use in later encounters. The responses of the organism are modified or expanded so that the satisfaction obtained from the encounter is maximized. These modifications of response are also stored systematically within the organism in conjunction with the information available from the encounter.<sup>12</sup>

#### THE DEVELOPMENTAL SEQUENCE

The complexity of environmental encounters increases as the child grows and develops. The organism's responses increase both in extent and complexity. The child develops a series of strategies for handling increasing quantities of outside information per unit of time. At the same time an intricate matching procedure between outside information and internal responses is established. The sequence of development in relation to sensory-motor learning are the necessary steps a child must take in order to develop learning readiness.

#### Motor Stage

Motor encounters are the first to occur. The child moves and as a result of this movement an encounter with the environment occurs; however the encounters are random and haphazard. "It is during this

stage that the child develops the tools for environmental encounters. He learns what the parts of his body are, what responses they can make, how to produce these movement responses, and how to recognize what response has occurred. However, because of the very close and intimate tie between kinesthetic information and movement, the child very early becomes aware of the correlation and as a result there is overlapping or bridging between the purely motor stage of development and the succeeding stage."(7, p.22)

#### Motor-Perceptual Stage

The matching of already learned motor information with perceptual information occurs next, with motor information being the controlling factor. Motor data are the important information from any experience. Perceptual information is manipulated against these motor data until consistency between the two sources of information is received. During this exploration with the hands, exploration also takes place with the eyes. At this stage it is the hand that tells the child when the information is adequate and when sufficient information has been obtained. "The visual information is controlled by and matched to the previous motor information. Out of many such experiments, a correlation between motor data and perceptual data begins to emerge. The eye now begins to give the same information as the hand."(7, p.25)

#### Perceptual-Motor Stage

Perception takes over at this point and motor information is used only to confirm or augment. For example, in eye-hand coordination, the eye now leads the hand. The eye performs the exploration and the



hand follows along confirming the visual information. The major source of information would now be visual. It is this type of eye-hand relationship which is usually assumed when the problem of eye-hand coordination is discussed. "Perceptual information, having been made secondary until consistency could be achieved, now assumes the primary role in the perceptual-motor match."(7, p.25)

### Perceptual Stage

Group perceptions begin to take shape when the child is able to identify characteristics of objects through perception and manipulates these characteristics to elaborate an extensive systematized body of information. By using perceptual manipulations he can predict what will happen in the event of a given response.

"The relationships between perceptions exist independent of the response of an organism. Although, normally, the child goes through the process of making these perceptual relationships meaningful in terms of his own response and his own reaction through the perceptual-motor match, it is possible to skip this matching phase. In this event the child learns to manipulate "disembodied" perceptions against each other and builds up a complex fund of perceptual information which he can manipulate skillfully. If the child is given a task which demands only perceptual manipulation, he impresses the instructor by doing the task well. If the question involves a motor component, the child is in difficulty."(7, p.27)

"Such a child lives, as it were, in two worlds: a perceptual world in which seeing, hearing, tasting, smelling, and the like, and a

motor world in which behavior and responses are developed. Each body of information was at least relatively well structured. However, the two bodies of information were not matched. Therefore, the child cannot use perceptual activity to guide or influence behavior or response. But, when the developmental stages outlined previously have been followed in order, such an integration of perceptual and motor information is achieved."(7, pp.27-28)

#### Perceptual-Conceptual Stage

At this point the child begins to recognize certain similarities in the things which are perceived. "It would appear that the initial concepts formed by the child are the result of abstract similarities among perceptions. The concept represents an extremely efficient method of handling information about the environment."(7, p.28)

Because of the extreme efficiency of the concept as a method of handling information, the child has begun to use this method as soon as enough rudimentary concepts have been developed to make it possible. Thus, the child moves into the conceptual stage of development.

#### Conceptual Stage

"In this stage the child observes the relationships between concepts as was previously the case with percepts. In short, the child has begun to observe the relationships between large masses of perceptual information."(7, p.29)

#### Conceptual-Perceptual Stage

"As the child develops an increasing number of concepts, he comes to depend more and more extensively on conceptual manipulations of

information. The child uses perception less and less as a primary source of information and more and more as a confirming function. Just as at an earlier stage, motor response controlled perceptual responses, so perceptual responses have controlled conceptual responses. A point was reached, however, in the earlier developmental stages where perception took over and provided the control for the motor response. In like manner, at this final stage in development, the concept takes over and controls the percept."(7, p.31)

#### THE DEVELOPMENT OF LEARNING READINESS THROUGH MOVEMENT EDUCATION

Research in recent years has given an even more defensible reason for expanding efforts to provide primary age children with the basic-motor and perceptual-motor skills which serve as the foundation for perceptual and cognitive learnings. It has been established by Kephart and Frostig that between 15% and 20% of all children enter school lacking the fundamental coordinative skills leading to a stable perceptual-motor world. In addition to minimal brain damage and emotional disturbances, it is hypothesized that a leading cause of disabilities are environmental conditions which limit exploratory and manipulative activities.

It is imperative, in this modern and complex world with increasing demands for learning, that greater attention be given to gross motor, perceptual motor, and coordinative training in the primary grades.

The infant establishes a spatial world through movement, exploration and manipulation. Perception gives meaning to events, objects, or situations and through perception learning takes place.<sup>9</sup>

Reading is a perceptual process. Reading is a complex operation and requires a number of systems be operating together for success and efficiency. Basic to efficient reading is the ability to control the eyes. A child can have perfect acuity but if the eye cannot follow the written material, reading becomes inefficient. Reading requires that the eyes move across the page from left to right in smooth, rhythmic sweep and then back to the left side again and down to the next line. The return sweep is very rapid with no visual clues to guide it, but it must be accurate or the rhythmic sequence of reading is broken. It is believed that comprehension is influenced by this rhythmic sequence in reading. Hence, if rhythm is not maintained, comprehension might suffer.<sup>1</sup>

It is not enough for the eyes to be able to sweep across the page in a rhythmic manner; they must work together for if the eyes do not work together, the child possibly will see two pages rather than one.

Visual coordination is one part of total body coordination. The eyes and the visual system are the master control system of the body. There is very little that can be done in motor performance that does not involve the eyes. "If a child manifests a deficiency in his total body coordination, it is almost certain that there will be some deficiency in the visual areas as well. Clinicians have recognized for a long time that begetting an improvement in the coordination of the body many times begets an improvement in the ocular system."(1, p.4)

Improvement in movement skills is important, but movement does not exist in isolation. It is accompanied by sensations and perceptual experiences.

This type of program would not be considered a physical education program in the traditional meaning of the term - development of physical fitness, systematic exercises, and sports and games. The goals of a program of this type would be more global.

#### Health and a Sense of Well-Being

A child's natural joy in movement and his feelings of mastery as he progresses in learning movement skills enhance his emotional health. Better physical and emotional health in turn has implications for a child's ability to concentrate on tasks and to learn.<sup>4</sup>

#### Movement Skills

Improving movement skills increases the efficiency of physical skills which are used everyday.<sup>4</sup>

#### Sensory-Motor Skills

Conscious movement is best understood as a sensory-motor activity, and it should be considered, trained, and evaluated in both its aspects - the sensory and the motor. The teacher, therefore, should not be interested in movement alone. Concern should also be with the initiation and direction of movement by auditory, visual, tactile, and kinesthetic stimuli. The following are examples: having a child follow oral directions (auditory); copying a movement (visual); climbing a jungle gym (tactile); walking a balance beam with eyes closed (kinesthetic).<sup>4</sup>

### Self-Awareness

Mechanization of education and the pressure in school to master an ever-increasing mass of facts and skills lead to neglect of subject matter that develops creativity and awareness of self. Modern life, lacking time and space for individual pursuits and creative tasks, leads to loss of self-awareness. This loss is felt as lack of identity, which in children is so often followed by dissatisfactions, restlessness, school dropout, and delinquency.<sup>4</sup>

Movement education can help children gain self-awareness and prepare them to withstand the pressures and anxieties of their lives as children and as adults. Movement education helps promote awareness of the individual, and work in pairs and in groups helps children become more aware of each other and teaches them to work together to achieve common goals.

### Time and Space Awareness

Awareness of the world around the individual depends on awareness of time and space because all objects and all events occur in time and space. In movement education, time and space are not only experienced directly, but they are fused into movement. With such experiences and with the understanding of the coordinates of time and space, a child acquires a firmer sense of self.<sup>4</sup>

### Body Awareness

Body awareness is essential for normal psychological and physical development. Emotional experiences strongly influence how the

body is perceived and experienced. Corrective emotional experiences may therefore be needed to influence body awareness. Although the elementary physical educator is rarely a trained psychotherapist, it is possible to provide a therapeutic environment. The instructor can amend a child's feelings about himself by encouraging a supportive atmosphere, by fostering good relationships between the child and instructor, and by providing opportunities for expression. Above all, it is important that children experience success.<sup>4</sup>

Since a child's body awareness reflects his total development, all experiences affect it. Physical education, because it involves body movement, provides the most direct means of enhancing body awareness.

In the study of body awareness conflicting research findings have been reported on the issue of whether or not the improvement in laterality and directionality can improve reading ability.

According to Harris, lateral dominance refers to the preference for or superiority of one side of the body over the other in performing motor tasks. A right-dominant person, therefore, would be one who prefers to use the right hand, right eye, and right foot. The left-dominant person prefers to use the left hand, left eye, and left foot.<sup>5</sup>

Some children, however, prefer to use the left hand but the right eye and the right foot, for example. This is referred to as crossed dominance. Another variation occurs when a child uses the right or left hand alternately, a condition referred to as unestablished dominance, or mixed dominance.<sup>5</sup>

The controversy over the relationship between dominance and learning ability, especially in reading, seems to stem in part from a confusion in terminology. Laterality is sometimes thought to mean the same as directionality. This is an error. Directionality refers to the knowledge of left and right. Does the child know where his right eye is? Does he know where the right side of the paper is?

Directionality does have an effect upon learning ability. Children who have no knowledge of the right and left sides of the body have difficulties in orientating themselves on a page, in reading consistently from left to right, in writing letters in the correct direction, and in writing numbers. In contrast, other research has shown that modification of lateral dominance is not always related to learning. For example, crossed dominance is not correlated to reading ability.

As Cratty states, proper training can lead to transfer between dominance and directionality and in turn enhance learning of academic skills: "with innumerable left-right movement experiences and the proper building of a cognitive bridge between this kind of left-right concept and the left and right of space we may aid children to reverse letters less, and in other ways to correctly order letters in words and words in phrases."(2, p.4)

At this point in the discussion of theories it is of importance to note some of the modern day theories. One is the organismic age theory which proposes that the performance of a child is associated with certain factors closely related to his total motor, emotional, social, and intellectual development. "Each child should be considered



as a whole, integrated being in the developing programs suited to meeting his needs." (10, p.32) This concept appears to hold for both normal children and children with learning disabilities.

Another theory expressed by Glenn Doman, states, "the need for neurological organization which, in normal children, is the result of uninterrupted ontogenetic development." "Neural patterns omitted during the neurological development of the child must be introduced in order to compensate for the missing links." (3, p.2) Physical activity is the prescribed therapy medium.

A third theory, the perceptual-motor concept, stresses the complete perceptual-motor development, which explains learning difficulties as a result of a breakdown in the perceptual-motor development of the child.<sup>8</sup>

Most of the theories hold that the child's concept of spatial relationships is gained largely from the way he relates his body to the space in which he lives and moves; the earliest learning is based on perceptual-motor responses. Children love to touch, taste, smell, see, and hear. This is why most test items for measuring the intelligence of a child are sensorimotor in nature. It would appear that a planned physical education and movement program for all children should require the use of all the senses in stimulating neuromotor function.

#### THE COMPARISON OF MOTOR LEARNING TO ACADEMIC ACHIEVEMENT

Research in the field, up until 1960, had yielded no correlation between mental performance and motor performance. However, this was of little wonder because the investigators were using growth items

such as age, height, weight, strength, speed, and the like to compare against intellectual performance. Thus, in finding no correlation between the two, the researchers concluded that there was no substantial relationship between mental performance and motor performance.

But, in 1963, researchers found a relationship between coordination and balance items and academic development. In 1965, it was found that balance and coordination items were much more important in predicting intellectual achievement than were growth items. In fact, these researchers substantiated the earlier research findings with respect to low relationships between growth items and intellectual performance.

Since researchers have also found a relationship between balance and coordination items and academic development, it was hypothesized that an organized physical education program would significantly enhance intellectual performance. This hypothesis was held tenable for improvement in Stanford Academic Achievement Scores. The experimental group was two to five months ahead of the control group in reading and arithmetic achievement after a one-year program. (The control group was given a recess period for free play during the planned physical education period of the experimental group).<sup>6</sup>

In a study of normal preschool boys and girls researchers compared the scores of those having a recess period with those having an organized physical education program. The physical education group had significantly higher scores in reading readiness test at the end of the study when compared with the free play period control group.<sup>11</sup>

## SUMMARY AND CONCLUSION

It is obvious, through the research that has been done, that sensory-motor development is closely related to what has been called in education "readiness." Educators have long been aware that readiness is necessary before basic academic skills can be taught successfully. It has been too frequently assumed, however, that readiness is a product of maturation alone. Maturation is certainly important in readiness, but pre-school learnings and other early types of learning are equally important. Because of the tendency to depend upon maturation to explain readiness, the school has often felt that it had only a minor concern with the problem. When a child was discovered who did not display the necessary readiness skills upon entering school, the procedure was frequently to keep him out for a year or so in the hope that readiness would develop. Such delaying of entrance into school, however, had the effect of throwing the child back into the customary learning situation of his home and neighborhood. These customary learning situations, many times are not sufficiently intense for the needs of the child.

It would seem appropriate, therefore, that the school accept some responsibility for the problem of readiness and begin to teach and promote readiness. This is the area in which a physical education program which emphasizes preventive learning disabilities in the primary grades can make a tremendous contribution. As the agency concerned with childhood learning, the school should be able to offer the child the intensified learning experiences which the child has been

unable to obtain elsewhere and by which readiness can be developed. If the schools would use the techniques and procedures for aiding development they would be in a position to offer the child the type of learning experience which cannot be obtained anywhere else. At the same time, by solidifying the developmental foundations underlying learning, many later academic problems might be prevented.

## BIBLIOGRAPHY

1. Belgau, Frank A., A Motor Perceptual Developmental Handbook of Activities: (LaPort, Texas: Perception Development Research Associates, 1966).
2. Cratty, B. J., "Rationale for and Principles of Perceptual Motor Training," Multidisciplinary Approaches to Learning Disorders, Chicago: John Wiley, 1969.
3. Doman, Glenn, Lecture given at the Institute for the Advancement of Human Potential, January 10, 1966.
4. Frostig, Marianne, Move Grow Learn: A Teachers' Guide. Follett Educational Corporation, 1969.
5. Harris, A. J., Harris Test of Lateral Dominance - Manual of Directions (3rd Ed.) New York: Psychological Corp., 1958.
6. Ismail, A. H. and Gruber, J. J., Integrated Development: Motor Aptitude and Intellectual Performance. Columbus: Charles E. Merrill Books, 1967.
7. Kephart, Newell C., "Learning Disability: An Educational Adventure," Kappa Delta Pi Press, 1968.
8. Kephart, Newell C., The Slow Learner in the Classroom, Columbus: Charles E. Merrill Books, 1960.
9. Leaver, John, et al., Manual of: Perceptual-Motor Activities. A Guide for Elementary Physical Education and Classroom Teachers, Marfex Associates, Inc.
10. Olson, W. C., Child Development, Boston: D. C. Heath, 1959.
11. Rutherford, W. L., Perceptual Motor Training and Readiness. Unpublished paper, Tarkio College, Tarkio, Missouri, 1967.
12. Strauss, A. A. and Kephart, N. C., "Psychopathology and Education of the Brain Injured Child." Vol. II: Progress in Theory and Clinic. New York: Grune and Stratton, 1965.

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The purpose of this study was to point out a need for physical education programs with emphasis on prevention of learning disabilities at the elementary school level.

The term learning disability is commonly defined to mean academic failure in the absence of a known specific cause such as general mental retardation, emotional disorder, sensory handicap, or cultural deprivation. The cause of the disorder is assumed to be within the child, presumably because of a difference in brain function, so that he cannot respond appropriately to the educational environment.

Teachers are aware of the child with a learning disorder as early as the first grade level. The child may appear somewhat immature, but general social or adaptive behavior may not be different from the child's peers. Such a child may begin the first grade without having raised suspicions during the preschool years. However, the child may fail to learn, or what is learned may be forgotten. The rudiments of reading, spelling, or number concepts may elude the child. In the case of the learning disabled child the school nurse will report no evidence of faulty vision or hearing.

For many years and even today, many school administrators and teachers attribute to his immaturity the child's inability to learn. As a result the child is not allowed to continue on to the next grade with his peers. The logic of this has been one of allowing the child to mature and in some unknown way be ready to learn during the next school year. This tactic is as unacceptable as passing the child to the next grade simply to keep peer group relations in tact.

In the last ten years educational research has made tremendous contributions to the learning disabled child. Researchers have found that there is significant importance between the sensory-motor developmental sequence and the child's readiness to learn. The sensory-motor developmental sequence is the area in which physical education can make its greatest contribution in the primary grades. The improvement of sensory-motor skills with emphasis on preventive learning disabilities is not only a very desirable goal but it is also a workable one.

Three independent research projects have shown a relationship between coordination, balance, and academic development. Research has also shown that preschool boys and girls who are exposed to an organized physical education program score higher on reading readiness tests than those who are exposed to a free play period.

The reasons for improvement in learning readiness due to the practice of sensory-motor activities have been expressed in several theories, all of which carry somewhat the same theme. That central theme holds that the child's concept of spatial relationships is gained largely from the way he relates his body to the space in which he lives and moves: the earliest learning being based on perceptual-motor response and the last stage being the conceptual-perceptual response. If the child misses one of these stages his response to those things which are perceived will be inaccurate because of a misinterpretation within the sensory-motor response.

Physical education programs with emphasis on preventive learning disabilities in the primary grades can improve sensory-motor responses which will in turn increase the child's ability to begin to learn.