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IDENTIFYING THE MOVEMENT LEARNING
AREAS APPLICABLE TO THE GROWTH
AND DEVELOPMENT OF THE FIVE
YEAR OLD CHILD

By

MARGARET A. CRAWFORD

Bachelor of Science
Lindenwood Colleges
St. Charles, Missouri
1969

Master of Science
Oklahoma State University
Stillwater, Oklahoma
1971

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Thesis Approved:

Betty W. Abercrombie
Thesis Adviser
Henry H. Hulse
Ray B. Harrison
John W. Creswell
Norman N. Durham
Dean of the Graduate College

098451

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CHAPTER I

ORIENTATION OF THE STUDY

Introduction

In the decade of the 70's, everyone is looking at the preschool child. He is suddenly big business, important news, a television market, a phenomenon to be researched. Ages two to five have assumed unprecedented significance; once considered a waiting period until 'real learning' began, these years are now deemed crucial for future success. However, for the most part in our rush, we have not developed broad movement experience programs for the young child. In general, the rush has been in one direction--to develop programs designed only to hasten or improve cognitive development or to correct learning disabilities through stereotyped movement training, concepts quite different from the goals of most early childhood educators, and, hopefully, from the goals of most physical educators.¹

Many education programs for the kindergarten child stress only the cognitive enrichment of the child and neglect the importance of guided movement experiences. Schools will usually create an environment for free play and specify this time as the child's opportunity for physical activity. Free play has its place in the elementary school schedule, but a five year old child also needs an instructional environment which is directed toward movement experiences that will ensure optimum development. In relation to providing only a time for free play for a

¹Lolas E. Halverson, "A Real Look at the Young Child," JOPHER, 42:5, (1971), p. 31.

five year old child, Warner stated, "These facts are alarming in the sense they are happening during the phases of growth and development when potential detrimental effects are the greatest."² This philosophy that is embedded in the assumption that physical education may be unappropriate for a five year old child, may be rooted in the belief that a kindergarten child will be placed in a highly competitive environment which fosters the future development of athletes. Specific objectives limited to the primary development of a perfected skill for a sports oriented goal is detrimental to the growth and development of the child. Program goals and objectives need to be adjusted in relation to the overall development of each individual child who is learning how to efficiently and effectively function in an ever changing world. For example, a physical educator, having children work with bean bags and fluff balls, may gear the instructional objectives toward future skills needed in softball. Eye-foot-hand coordination and body awareness are movement areas that may not have been specifically considered as behavioral objectives. These types of objectives are vital to a child's existence as a moving, active person; becoming a good softball player contributes little to an individual's total development.

However, many people still view physical education as a learning experience for the highly skilled. Emphasis should be geared toward social, emotional, intellectual, and psychological behavior in relation to basic movements and the perceptual abilities that improve as large

²Peter Werner, "Physical Education During the Pre-School Years." The Physical Educator, 29:4 (December, 1972), p. 180.

muscles develop their coordination.³ Gallahue believes that directed movement activities for preschool children aid in the child's development to cope with his environment.⁴ Herkowitz stated nine reasons why planned preschool movement experiences are important. She emphasized that planned movement experiences (1) encourage normal physical development, (2) ensure that sensitive periods for acquiring motor skills are not neglected, (3) encourage the formation of a solid foundation of fundamental fine and gross motor patterns upon which children can later build specialized skills, (4) foster the development of feelings of security, self-confidence, and self-worth, (5) foster the formation of an accurate self-concept, (6) foster normal cognitive and sensory-motor development, (7) provide joy and pleasure, (8) provide an opportunity to develop communication skills, and lastly, (9) provide an avenue through which children can develop social skills.⁵

However, to differentiate specific and appropriate activities which are meaningful has been a problem for many educators. This appears to be due to the lack of research studies directed toward the importance of motor development. There is information relating to such aspects as when a child crawls, walks, and runs, but this research has not been extended toward knowing how various motor developmental stages affect a five year old child's life. Even though a child may progress through

³Bernard Ryan, Jr., Your Child and the First Year of School (New York and Cleveland, 1969), p. 98.

⁴David Gallahue, "Directed Movement Activities for Preschool Children," The Physical Educator, 30:2 (May, 1973), p. 70.

⁵Jacqueline Herkowitz, "Movement Experiences for Preschool Children," Journal of Physical Education and Recreation, 48:3 (March, 1977), pp. 15-16.

various motor stages, it is important to relate his physical achievements to individual efficiency. Although movement activities may be justified by a child's need to play, the questionable element still remains as to whether to direct play into an instructional environment. Many child development leaders as well as physical educators view play as "free and spontaneous, initiated and directed by each child himself, to meet his own needs--and is not teaching distinguished as play."⁶ The important element is to distinguish the difference between play and physical education. Physical education for the five year old must expand the premise of play into a learning environment which directs movement toward an education of each individual's movement capabilities.

Related to the overall need of physical education programs at the kindergarten level is the deficiency of curricular materials and programs in the area of physical education for the five year old child in the state of Oklahoma. Harvey Tedford, physical education specialist for the state of Oklahoma, has requested the development of curriculum materials which can be utilized for physical education at the kindergarten level. An informal request may be noted in Appendix A.

The realm of directed movement activities for the preschool child has become a focus of national interest. There is a progressive trend to educate younger children through various agencies. Head Start provides movement activities administered by skilled leaders to enhance a preschooler's individual development.⁷ The Office of Child Development

⁶Lillian De Lissa, Life in the Nursery School in Early Babyhood (London, New York, Toronto, 1949), p. 191.

⁷Edward Zigler, "Play and Child Development," JOPHER, 43:6 (June, 1972), p. 26.

with the United States Department of Health, Education, and Welfare has a Youth Services Division which assists with programs for young children of various ages and backgrounds.⁸ Flinchum stated, "Structural nursery schools are prevalent for three year olds, and many educators feel that these systems may be reaching children during the important years."⁹

The obvious interest and need for movement experiences to be afforded to a five year old child provided the motivation for the investigator to undertake a study to identify the movement learning areas conducive to the growth and development of a five year old child. This developmental step is necessary to facilitate curriculum planning.

Statement of the Problem

The primary purpose of this study was to identify significant movement learning areas that physical education and growth and development specialists feel contribute to the growth and development of the five year old child. The secondary purpose was to determine if the physical education and growth and development specialists differed in their preference of the movement areas.

Significance of the Study

At the present time it appears there is a need to develop physical education programs at the kindergarten level. A closer relationship

⁸Ibid.

⁹Betty M. Flinchum, Motor Development in Early Childhood (St. Louis, 1975), p. 4.

among the various school levels (elementary, junior high, and senior high) would enhance the overall scope of physical education. In the event that physical education is to obtain a respectable position in the academic world, it is necessary to focus the attention on the base of the program, beginning at the kindergarten level. Developing a physical education curriculum for the five year old must be in tune to applicable learning principles and movement capabilities that correlate to the developmental states. Relating identified elements that will contribute to the growth and development of the five year old child to appropriate movement areas is an important curriculum developmental stage.

It appears that the field of physical education would not be as liable to attacks of criticism if the program remained true to its purpose of employing movement as the medium to educate a person within his individual movement capabilities. With this in mind, the investigator senses that the identification of the movement areas applicable to the growth and development of the five year old child will facilitate the development of a meaningful and relevant physical education curriculum.

Delimitations

The study focused on the identification of the movement areas conducive to the growth and development of the five year old child which would be applicable to a physical education, movement, curriculum for the five year old child. Twenty-one movement areas were identified that represented potential movement experiences applicable to the growth and development of a five year old child.

Assumptions

Three assumptions were established within the delimitations of this study. First, the identified movement areas were not considered as content areas but as potential movement experiences which would facilitate the development of a meaningful and relevant movement program for a five year old. Second, the judges obtained to rate the movement areas were considered to be specialists within the fields of early childhood physical education and growth and development. Third, it was assumed that the physical education and growth and development specialists could easily relate to the identified movement areas based on the definitions provided in the survey instrument.

Definition of Terms

1. Curriculum - Curriculum consists of all the planned experiences offered to the learner--what he undergoes, feels, and reacts to under the guidance of the school.¹⁰ "Curriculum deals with expectations or intentions, and, more specifically, with the learning outcomes intended to be achieved through instruction, that is, through the experiences provided, through what happens and what learners do."¹¹
2. Curriculum Guide - Suggested materials that are developed within a flexible framework to permit a greater amount of teacher

¹⁰Donald F. Cay, Curriculum: Design for Learning (New York, 1966), p. 3.

¹¹Galen J. Saylor, and William M. Alexander, Planning Curriculum for Schools (Chicago, 1974), pp. 5-6.

initiative and teacher-student planning which will enhance desirable types of learning experiences.¹²

3. Movement Area - Movement is the act or process of overt motion that occurs in relationship to an individual's immediate environment and in the manner in which he is perceived by others.¹³
The author uses the term "area" to note a particular type of learning which may be applied to specific content. "An educational form is an organization of experiences" which may be related to specific learning experiences."¹⁴
4. Play - "Free and spontaneous, initiated and directed by each child himself to meet his own needs . . ."¹⁵
5. Directed Play - "Play with a purpose is a planned program of physical education which creates a dynamic relationship between the individual and his environment."¹⁶
6. Physical Education - Physical education is a process which employs movement as the medium to educate a person within his individual movement capabilities. Within the context of the affective,

¹²Galen J. Saylor, and William M. Alexander, Curriculum Planning for Better Teaching and Learning (New York), pp. 92-93.

¹³Evelyn Schuur, Movement Experiences for Children: A Humanistic Approach to Elementary School Physical Education (Englewood Cliffs, N. J., 1975, 2nd ed.), pp. 2-3.

¹⁴Eleanor Metheny, Movement and Meaning (New York, 1968), p. 92.

¹⁵Lillian De Lissa, Life in the Nursery School in Early Babyhood (London, New York, Toronto, 1949), p. 191.

¹⁶Marian H. Anderson, Margaret E. Elliot, La Barge Jeanne, Play With a Purpose (New York and London, 1966), p. 449.

cognitive, and psychomotor domains, the primary objectives of physical education are geared toward the intellectual, social, and physical development of each individual.

7. Education - "Education may be described as a process that serves to activate meaningful learning, or as a process that activates meanings."¹⁷
8. Learning - "The process by which behavior is developed or altered through practice or experience."¹⁸
9. Movement Explorations - "A method and process of teaching and learning movement in which the individual is guided or proceeds through progressively less teacher-directed and more self-directed experiences designed to elicit his own movement patterns in relation to his personal capabilities."¹⁹
10. Perceptual Motor - "Perceptual motor development describes an orderly process which involves receiving and transmitting input information via various internal and external sensory pathways--vision, touch, kinesthetic, smell, taste, hearing, proprioceptive, balance."²⁰

¹⁷Eleanor Methany, Movement and Meaning (New York, 1968), p. 93.

¹⁸Joseph B. Oxendine, Psychology of Motor Learning (New York, 1968), p. 7.

¹⁹Barbara B. Godfrey and Newell C. Kephart, Movement Patterns and Motor Education (New York, 1969), p. 304.

²⁰Charles B. Corbin, A Textbook of Motor Development (Dubuque, Iowa, 1973), p. 113.

11. Balance - "Balance is the control of one's position in relation to his center of gravity in order to move effectively."²¹
12. Coordination - "Coordination, essentially composed of two ingredients (laterality and directionality), refers to the quality of the movement and includes the accuracy, ease, and efficiency of the performance."²²
13. Poise - "Physical ease or balance in bearing or movement."²³
14. Body Image - "Impression child has of the nature of his body and its potentialities for movement. Development of an adequate body image involves knowledge of the body parts, what they are capable of doing, how to make them do it, and how much space they occupy."²⁴
15. Spatial Awareness - "Spatial awareness is the concept of the relationship between the body and body parts with objects in space."²⁵
16. Rhythm - "In movement, rhythm is the relationship between time and force factors, and is manifested through repetition by the kinesthetic sense."²⁶

²²Ibid., p. 10.

²³Funk and Wagnall, Funk and Wagnalls Standard College Dictionary (New York, 1963), p. 1043.

²⁴Maryhelen Vannier, Mildred Foster, David Gallahue, Teaching Physical Education in Elementary Schools, 5th ed. (Philadelphia, 1971), p. 58.

²⁵Evelyn L. Schur, Movement Experiences for Children: Curriculum and Methods for Elementary School Physical Education (New York, 1967), p. 36.

²⁶Shirly J. Winters, Creative Rhythmic Movement (Dubuque, Iowa, 1975), p. 64.

17. Basic Movements - Basic movements involve the integrated dimensions of movement of body parts, locomotor movement, moving implements and objects, and moving with others.²⁷
18. Color and Form Perception - Distinguishing something in relation to a phenomenon of "light" and/or the shape and structure via a capacity for visual comprehension.
19. Communication Skills - These are skills which allow an individual to express himself physically, socially, emotionally, cognitively, and/or verbally.
20. Gross Motor Abilities - These are movements involving the large muscle groups of the body.
21. Fine Motor Abilities - These are movements involving the small muscle groups of the body.
22. Creative Opportunities - Creativity is a process which allows an individual to "explore, search, investigate, and discover movement in order to further his awareness of his body, movement, rhythm, space, force, and creativity."²⁸
23. Manipulative Skills - "A manipulative skill is one in which a child handles some kind of a play object, usually with his hands, but it can also involve the feet and other parts of the body."²⁹

²⁷Charles B. Corbin, Becoming Physically Educated in the Elementary School (Philadelphia, 1971), p. 90.

²⁸Shirley Winters, Creative Rhythmic Movement (Dubuque, Iowa, 1975), p. 84.

²⁹Victor P. Dauer, Essential Movement Experiences for Preschool and Primary Children (Minneapolis, Minnesota, 1972), p. 137.

24. Physical Fitness - Developing and attaining a satisfactory physical working capacity in regards to strength, endurance, flexibility, agility, power, and speed.³⁰
25. Axial Movements - "Axial movements are static postures that involve bending, stretching, twisting, turning, and the like."³¹
26. Posture - "Human posture refers to the arrangement of the body parts in relation to each other. Since the human body assumes many positions an individual has not one, but many postures. Because each individual is unique, his postures are also a unique reflection of his self, his genes, his environments, his motives, feelings, and aspirations."³²
27. Mimeticing - "The term 'mimetic' literally means to 'imitate.' The child should move or act out something he has heard or seen."³³
28. Direct Competition - A contest between two or more individuals striving for an object which only one of them can accomplish."³⁴

³⁰Glenn Kirchner, Physical Education for Elementary School Children (Dubuque, Iowa, 1975), p. 84.

³¹David L. Gallahue, Motor Development and Movement Experiences (3-7) (New York, 1976), p. 68.

³²Marjorie Latchaw and Glen Egstrom, Human Movement (Englewood Cliffs, New Jersey, 1969), p. 80.

³³Robert M. Wilson, James H. Humphrey, and Dorothy D. Sullivan, Teaching Reading Through Creative Movement (United States of America, 1969), p. 43.

³⁴Hollis F. Fait, Physical Education for the Elementary School Child (Philadelphia, 1976), p. 23.

29. Indirect Competition - "Occurs when an individual is striving for a specific goal and the success or failure of his obtaining that goal is not dependent upon other people."³⁵
30. Relaxation - "The learning of conscious control of muscle tonus and the ability to reduce it at will."³⁶

Research Design

The development of the study was done by the descriptive method of research, and the procedures used by the author are as follows:

1. Information: Through a review of the literature the researcher obtained information relating to the learning principles, growth characteristics, motor studies and play and physical education programs applicable to the five year old child.

2. Survey Instrument: From the review of literature the researcher compiled a list of movement areas. A rating instrument was designed in order to rate the importance of each movement area in relation to planning a movement curriculum for the growth and development of the five year old child. A set of definitions was established to specify the exact meaning of each movement area. An explanation of the individual rating areas was provided to clarify the degree of emphasis for the identified movement area.

3. Pilot Study: A pilot study was conducted utilizing three elementary physical education specialists and three child development specialists.

³⁵Ibid.

³⁶Daniel D. Arnheim, and William A. Sinclair, The Clumsy Child (St. Louis, 1975), p. 32.

4. Primary Study: The final survey instrument was mailed to 50 nationally recognized early childhood physical education specialists and 50 growth and development specialists.

5. Statistical Procedures: The four research questions investigated in this study were the following:

- (a) What are the most important movement areas that both early childhood physical education and growth and development specialists feel should be included in a movement curriculum for a five year old child?
- (b) Do the physical education and growth and development specialists differ in terms of their preference of the movement areas?
- (c) Controlling for sex, do the physical education and growth and development specialists differ in their preference of the movement areas?
- (d) Controlling for years of early childhood teaching experience, do the physical education and growth and development specialists differ in their preference of the movement areas?

In order to statistically investigate the four research questions, the following procedures were used: first, a descriptive analysis indicating a frequency distribution was conducted to indicate the important movement areas; a factor analysis indicating six theoretical dimensions, and a one-way analysis of variance was conducted to determine if the physical education and growth and development specialists differed in their preference of the movement areas; a one-way analysis of variance was performed to determine if the female and male specialists differed in their preference of the movement areas; and, an

analysis of co-variance was conducted to determine if the specialists differed in their preference of the movement areas in relation to early childhood teaching experience.

CHAPTER II

REVIEW OF THE LITERATURE

The review of the literature was conducted by an investigation of the following four areas: learning principles, motor studies, growth characteristics, and play and physical education programs. In order to discuss a learning environment appropriate for young children, it was first necessary to discuss assumptions that people have about the nature of the child, because this will influence the use of a particular learning principle. In order to determine the movement learning areas which will be applicable to curriculum development of the five year old child, it was necessary to investigate studies substantiating reliable research which is related to the motor capacities of a five year old. A review of the literature was examined to note the growth characteristics of the five year old child. Finally, studies were examined to identify the play and movement factors which are appropriate in a movement program.

Learning Principles

The theory of learning is essential because much of man's diverse behavior is the result of learning. The importance as to the rate of learning in early childhood was supported by Benjamin Bloom's estimate that about 17 per cent of the growth in educational achievement takes

place between the ages of four to six.¹ Beauchamp stated that

. . . these are the years in which general learning patterns develop most rapidly, and failure to develop appropriate achievement and learning in these years is likely to lead to continued failure throughout the remainder of the individual's school career.²

Fowler's research on cognitive learning in infancy and early childhood indicated that even minimal cognitive stimulation appropriate to the capabilities of the child can be highly effective in accelerating the development of intellectual functions.³ Jenkins feels that a child will contribute to the learning processes as long as his emotional needs are satisfied; and therefore, greater learning occurs in the classroom.⁴ Of course, in order to deal with the learning of a child one must note the intimate linkage between teaching and learning; an understanding of the relationship between both of these areas is necessary in order to deal with the overall realm of learning.⁵

Learning principles in early childhood will reflect one's philosophical view of the nature of man. Evelyn Weber stated that

¹Mary Beauchamp, "How Should We Look at Levels," Childhood Education, 32 (1955), pp. 164-167.

²Ibid.

³W. Fowler, "Cognitive Learning in Infancy and Early Childhood," Psychological Bulletin, 59 (1962), pp. 116-152.

⁴David H. Jenkins, "Interdependence in the Classroom," Journal of Educational Research, XLV:2, (1951), pp. 137-144.

⁵Philip W. Jackson, Life in Classrooms (New York, 1968), p. 159.

. . . education in the preschool years has always been responsive to prevailing assumptions about the nature of man and his development, the ways in which learning takes place, and sociological concerns.⁶

Early childhood development programs are founded on the beliefs and assumptions about the nature of children and about the developmental processes that are relevant for the optimum growth and behavior of young children.⁷ The manner in which a child develops his learning processes can be related to how he is perceived in his environment. Therefore, it is felt that educators should hold off making theories and judgments about children until they have an accurate model of what children are like.⁸

Whitehurst stressed that movement for the young child is a primary factor in the child's life, self-discovery, environmental discovery (both physical and social), freedom (both spatial and self-expressive), safety, communication, enjoyment and sensuous pleasure, and acceptance.⁹ Jensen stated that learning in the younger years will be enhanced through an active environment which focuses on physical and verbal development.¹⁰ Cratty expressed that movement can be incorporated effectively into

⁶ Evelyn Weber, Early Childhood Education: Perspectives on Change (Worthington, Ohio, 1970), p. 4.

⁷ Edith M. Dowley, and Rose M. Bromwich, "The Role of Curriculum in Early Childhood Development Programs," Planning for Action, Dennis N. McFadden, ed. (Washington, D.C., 1972), p. 33.

⁸ John Holt, How Children Learn (New York, 1969), p. 173.

⁹ Katurah E. Whitehurst, "What Movement Means to the Young Child," JOPHER, 42:5 (1971), p. 35.

¹⁰ Arthur H. Jensen, "Learning in the Preschool Years," The Journal of Nursery Education, 18:2 (1963), pp. 133-138.

educational programs in the following ways:

Manual activities, movement of the limbs, and total body movement combine in various ways in the performance of important educational skills. Intelligence is evidenced as the child uses his hand-eye coordinations and writes effectively or ineffectively. If he is able to control movement of his large postural muscles he will usually attend to the lessons on the desk in front of him with greater facility. The self-concept is enhanced or detracted from as the child exhibits good or poor playground skills combining movements of the larger and smaller muscles, while the total body moves through space.¹¹

The behavioristic and humanistic philosophies represent the two popular and controversial theories of learning. Unfortunately, there has been no research which has investigated either one of these learning principle areas in relation to the realm of movement and how a five year old child may most effectively develop his learning processes. However, since it is first necessary to relate the nature of man toward a philosophical learning theory which compliments the means through which one will learn, the review of the literature will be conducted through a general and brief investigation of these two primary theories of learning.

Behavioristic Learning Theory

A behaviorist views man as being neuter and therefore, capable of being conditioned through environmental stimuli. This belief is based on the philosophy that there is no such thing as human nature, for everything a person does is a learned response.¹² This is one of the

¹¹Bryant J. Cratty, Movement Perception and Thought (Palo Alto, California), p. 2.

¹²Walter B. Kolesnik, Humanism and/or Behaviorism in Education (Boston, 1975), p. 35.

basic assumptions of behaviorism, all behavior is learned except for a few simple reflex actions and primary drives. Consequently, a behaviorist is concerned with changing a person's behavior by producing environmental stimuli which will bring about or at least increase the probability of improving the individual's mode of behavior.¹³

The behaviorism psychology was initiated by John B. Watson in the late twenties. Ivan Pavlov was Watson's follower and developed the behaviorism psychology into what is known as classical conditioning. The other type of behaviorism is operant conditioning in which Edward L. Thorndike advocated instrumental conditioning based on the law of effect.¹⁴

Mednick stated that Pavlov's studies indicated that "most organisms, even human beings, have responses that will be elicited automatically by certain stimuli without any previous learning."¹⁵ This point of view suggests that one should deal with the problem of learning as a means of stimulus and response in terms of input and output.¹⁶

Thorndike emphasized that the influence of repetition of a situation is based on the law of effect. He indicated that when all the elements of a situation are as equal as possible, the more frequent those same elements lead to a particular response, and the more likely will the

¹³Ibid., p. 83.

¹⁴Ibid., p. 85.

¹⁵Sarnoff A. Mednick, Learning (Englewood Cliffs, New Jersey, 1964), p. 27.

¹⁶Arthur W. Combs, "The Human Side of Learning," ed. by Donald A. Read and Sidney B. Simon, Humanistic Education Sourcebook (Englewood Cliffs, New Jersey, 1975), p. 123.

same response be reproduced in the future.¹⁷

In order to assure the proper response, behaviorists advocate the use of behavioral objectives which are systematically designed and tested so there is tangible proof of the attainment or failure of the performance-based criteria.¹⁸ This does not mean that affective education has no place in the behaviorist philosophy. It is felt that affective responses are not only learned but taught.¹⁹

Behaviorists believe that extrinsic motivation is the means to attain the desired result. The use of extrinsic motivation has led to the adoption of behavioral modification which employs the use of positive and negative reinforcement in order to elicit desired behaviors.²⁰ In a study in 1959 Lazarus used behavioral modification while working with 18 subjects ranging in age from three and one-half to 10 years. In one case Lazarus helped a child who had a phobia of cars by rewarding the child with chocolates each time he mentioned cars in a positive way and later reinforced the child for sitting in and eventually riding in a car.²¹ Long and Madsen conducted a study to determine whether or not preschool children could apply behavioral

¹⁷Edward L. Thorndike, The Fundamentals of Learning (Columbia, 1932), p. 9.

¹⁸Walter B. Kolesnik, Humanism and/or Behaviorism in Education (Boston, 1975), p. 134.

¹⁹Ibid., p. 99.

²⁰Ibid.,

²¹Donald L. MacMillan, Behavior Modification in Education (New York, 1973), p. 27.

modification techniques with younger children in structured activities.²²

The reported results indicated that

. . . when the consistency of the reinforcement became stable, the inappropriate behavior of the children stabilized. Also evident from the data is that whenever the consistency dropped the inappropriate behavior of the younger children increased.²³

Linear programmed instruction is a well-used teaching method. It is felt that the individual steps leading to the overall learning task should be carefully planned and sequenced to ensure optimal learning.²⁴

Emphasis is toward specific transfer because a person will operate better within carefully defined limits.²⁵ In order to retain a particular type of learning, a child needs a variety of repeated and concrete experiences.²⁶

The behaviorists point out that even with appropriate past experience an individual may not solve a problem when presented in another way.²⁷ Therefore, behaviorism remains within the framework of a stimulus-response situation.

²² John Long and Charles H. Madsen, "Five Year Olds as Behavioral Engineers for Younger Students in a Day Care Center," ed. by Ramp, et al., Behavior Analysis (Englewood Cliffs, New Jersey, 1973), p. 342.

²³ Ibid., p. 356.

²⁴ B. F. Skinner, Cumulative Record (New York, 1959), pp. 145-182.

²⁵ Nathaniel Cantor, "Function and Focus in the Learning Process," Journal of Educational Research, XLV:2 (1951), p. 225.

²⁶ Ruth E. Hartley, "Play, The Essential Ingredient," Childhood Education, 48:2 (1971), p. 81.

²⁷ Ernest R. Hilgard, Theories of Learning (New York, 1948), p. 16.

Humanistic Learning Theory

The humanist philosophy views man as inherently good, whose behavior is determined by his perceptions of his environment and especially of himself, and his drive toward self actualization.²⁸ The concept of personal autonomy means that the child will have a role in instigating learning, in determining its direction, and terminating any learning situation.²⁹ The foundation in which humanism is grounded is to meet each individual on his own basic terms in which a "real self" is to be uncovered, nurtured, and developed. The primary implication of humanism is that learning must go beyond the learning of skills or the acquisition of habits and be directed toward the production of a creative, free-thinking individual.³⁰

The principles of humanism are fivefold: first, a person learns in a free environment; second, a person learns by relating the world to his own experience; third, a person learns cooperatively, intrinsically, and in relation to his personal humane qualities;³¹ fourth, if learning is to be an alive and vital process, the development of self-awareness is essential so that the real world of the learner

²⁸C. H. Patterson, Humanistic Education (Englewood Cliffs, New Jersey, 1973), p. 75.

²⁹Bernard Spodek, "Early Learning for What?" Phi Delta Kappan L:7 (1969), p. 396.

³⁰Abraham H. Maslow, "Some Educational Implications of the Humanistic Psychologies," Harvard Educational Review, 33:4 (1968), pp. 685-695.

³¹Carl Weinberg, Humanistic Foundations of Education (Englewood Cliffs, New Jersey, 1972), pp. 118-126.

becomes a world of personal meaning and involvement, a world centered on the self, where interests, activities, and concerns take on a personal form to each learner;³² fifth, active learning involves organic assimilation in which the child, not the subject matter, determines both the quality and quantity of learning.³³ Consequently, humanistic learning results from intrinsic motivation which will enhance one's memory, transfer, and self concept, and is not based on external incentive or threat.³⁴ Humanists feel that meaningful learning occurs when a person recognizes the value in a particular activity and regards the activity as a desirable end in itself.³⁵ Cantor stated that "significant learning stems from the self-directed motivation of the learner who wants something positive and creative for an unexpressed or unfilled need of his."³⁶

In contrast to the behavioral philosophy, Holt stated that

. . . it is essential to realize that children learn independently, not in bunches; that they learn out of interest and curiosity, not to please others; and that they ought to be in control of their own learning, deciding for themselves what they want to learn and how they want to learn it.³⁷

A person should go beyond the point in responding to stimuli and should be able to understand the relation of the stimuli in order to truly

³²Clark E. Moustakas and Cereta Perry, Learning to be Free (Englewood Cliffs, New Jersey, 1973), p. 3.

³³John Dewey, The Child and the Curriculum (Chicago, 1959), p. 9.

³⁴Douglas A. Kleiber, "Playing to Learn," Quest, 26 (1976), p. 68.

³⁵Walter B. Kolesnik, Humanism and/or Behaviorism in Education (Boston, 1975), p. 64.

³⁶Nathaniel Cantor, Dynamics of Learning (New York, 1972), p. xiv.

³⁷John Holt, How Children Learn (New York, 1969), p. 185.

have insight of the learning situation.³⁸ Therefore, the humanists approach learning from a whole concept as contrasted with specific part learning. One should avoid splinter skills in which the learning moves in a prescribed pattern to satisfy the demands of the specific task. It is felt that this is isolated from the child's body of learnings.³⁹ From a general framework an individual can apply and transfer his learning to various situations.⁴⁰ A child builds upon the learnings achieved from each experience.⁴¹

The earliest and most radical attempt to implement the concept of learning as natural development in an environment of love, understanding, and responsible freedom is Summerhill School founded by A. S. Neill in England in 1921.⁴² Neill viewed the child as being naturally good and would progress through natural stages of development without adult guidance, for "interference and guidance on the part of adults only produces a generation of robots."⁴³ At Summerhill, academic or intellectual development is subordinated to affective or emotional development.

³⁸John Stanley Gray, Psychological Foundations of Education, (New York, 1935), p. 249.

³⁹Newell Kephart, The Slow Learner in the Classroom, 2nd ed. (Columbus, Ohio, 1968), p. 9.

⁴⁰John D. Lawther, The Learning of Physical Skills (Englewood Cliffs, New Jersey, 1968), p. 42.

⁴¹Mamie W. Heinz, Growing and Learning in the Kindergarten (Richmond, Virginia, 1959), p. 63.

⁴²C. H. Patterson, Humanistic Education (Englewood Cliffs, New Jersey, 1973), p. 46.

⁴³A. S. Neill, Summerhill: A Radical Approach to Child Rearing (New York, 1960), p. 12.

McCrorry, in a study of educational magazines in the late 1930's found some very definite trends in the curriculum. He noted that the nature of child activities and their direct relation to life reflect one's ability toward self-planning, self-direction, freedom to discovery, explore, think, and play.⁴⁴

In 1936 Langer conducted several experiences to see if the subjects could learn a task which was void of any original meaning for the learners. The subjects solved the task by organizing a variety of personal experiences so that the arbitrary associations gradually converted into meaningful associations.⁴⁵ Katona supported this finding by stating that the most successful learning is proceeded by grasping meanings.⁴⁶ Fort, Watts, and Lesser conducted a five year longitudinal study to find out how young children from different cultural backgrounds learn. This study indicated that effective learning cannot be achieved by clustering students in one instructional mode because each ethnic group apparently transmits its own combination of intellectual strengths and weaknesses. Children must be viewed as individuals in order to structure the total learning environment.⁴⁷

⁴⁴Ruby Minor, Early Childhood Education - Its Principles and Practices (New York, 1937), p. 214.

⁴⁵W. C. Langer, "The Role of Organization in the Learning of a Sensorimotor Task," Journal of Psychology, 2 (1936), pp. 317-325.

⁴⁶Gertrude Hindreth, Child Growth Through Education (New York, 1948) p. 37.

⁴⁷Jane G. Fort, Jean C. Watts, and Gerald S. Lesser, "Cultural Background and Learning in Young Children," Phi Delta Kappan, L:7 (1969), pp. 386-388.

In determining what mode of learning is best, there are some important insights about young children from the early childhood literature which should be noted. There is no one best approach to learning for all children, and educational objectives vary as to whether the emphasis is primarily on growth or primarily on learning. Variability among individuals is a basic factor in behavior, and any curriculum plan must begin at the beginning and provide for the systematic development of behavior until a desired level of achievement is reached. The teacher's qualities are extremely important in determining the nature of the educational experience for the child because a stimulating environment is essential for normal personality and intellectual development.⁴⁸ Neither the behaviorists nor the humanists have all the answers to the problems of education. However, they at least provide some tentative answers to numerous educational problems and offer direction to finding other answers. One may not be an out and out humanist or behaviorist; one may be a humanistic behaviorist or a behavioristic humanist. Either of these terms could be used to designate a humanistic person with humanistic attitudes toward students who selectively follow certain behavioristic principles and techniques when it seems appropriate.

⁴⁸Edith M. Dowley and Rose M. Bromwich, "The Role of Curriculum in Early Childhood Development Programs," Dennis N. McFadden, ed. Planning for Action (Washington, D.C., 1972), pp. 46-47.

Motor Studies

The first five years of life are those in which the child deals with problems of locomotion as he manipulates the various objects encountered in his environment. Motor skill development in childhood encompasses the development of abilities which are essential to movement and the subsequent acquisition of motor patterns.⁴⁹

Studies directed toward gross motor attributes of a five year old have indicated such selected behaviors as the ability to broad jump from two to three feet, hop fifty feet in about 11 seconds, balance on one foot for four to six seconds, and catch a large playground ball bounded to him.⁵⁰

Hicks conducted a study to determine the effect of specific practice upon the ability of young children to hit a moving target by throwing the ball. The results indicated that improvement in skill did not result primarily from specific practice, but from other factors such as structural maturation and general practice which had a direct bearing on the specific skill.⁵¹

In a review of early childhood motor literature, Flinchum cited Hanson's study which compared throw performance of instructed and

⁴⁹Ralph L. Wickstrom, Fundamental Motor Patterns (Philadelphia, 1970), pp. 8-9.

⁵⁰Bryant J. Cratty, Perceptual and Motor Development in Infants and Children (London, 1970), p. 161.

⁵¹J. Allan Hicks, "The Acquisition of Motor Skill in Young Children," Child Development, 1:2 (1930), pp. 90-103.

non-instructed kindergarten boys and girls. The results concluded that the throwing patterns of the instructed group developed more readily into an efficient pattern of movement.⁵²

McCaskill and Wellman made a study of common motor achievements of 98 children from ages two to six in the preschool laboratory at the University of Iowa. The selected activities which were appealing to this age group included ascending and descending ladders and steps, ball handling control (throwing, catching, and bouncing) and the movement patterns of hopping, skipping, jumping, and balancing. Results indicated that the boys tended to be more efficient in the step and ladder test, while the girls rated higher in the hopping and skipping activities. There were no significant difference in the ability for the ball activities between the boys and girls.⁵³

Goodenough and Smart conducted a longitudinal study on the interrelationships of motor abilities in two and a half to five and a half year old children. The purpose of the study was to determine whether motor abilities involving different muscle groups would vary in relation to such factors as age, sex, physical size and strength, and intelligence. Test items included time required to walk a 25-foot line, errors in stepping off the line, finger tapping with the contometer needle threading test, a three-hole test, and a simple reaction time

⁵²Betty Flinchum, Motor Development in Early Childhood (St. Louis, 1975), p. 14.

⁵³Cara Lou McCaskill, and Beth L. Wellman, "A Study of Common Motor Achievements at the Preschool ages," Child Development, 9 (1930), pp. 141-150.

test. Concluding results indicated that the children performed in a uniform fashion and could be reliably tested on motor skills.⁵⁴

In 1967, Espenchade and Eckert compiled an extensive review of motor development research. Conceptualized charts and graphs were developed to illustrate figures on times and distances for running, jumping, and throwing for children from kindergarten through high school age.⁵⁵

Doudlah conducted a study to determine if kindergarten children who were low in performance on selected physical tasks demonstrated depressed perceptual-motor function in the tactile, visual, kinesthetic, and body image areas. From 265 kindergarten children from Foster School in Evanston, Illinois, 38 were judged to be low in motor performance and were given a perceptual-motor function battery. Form constancy, position in space, and visual figure ground were the main areas of difficulty for this group. It was also noted that the boys were significantly better than the girls in motor performance.⁵⁶

Four hundred nineteen randomly selected children in grades K-3 were Leslie's subjects in a comparison study on the effect of a movement exploration program versus a traditional physical education program. The general hypothesis of the study stated that there would be no

⁵⁴Florence L. Goodenough and Russel C. Smart, "Inter-relationships of Motor Abilities in Young Children," Child Development, 6 (1935) pp. 141-153.

⁵⁵A. E. Espenchade, and H. M. Eckert, Motor Development (Columbus, Ohio, 1967), pp. 158-160.

⁵⁶Anna May Doudlah, "The Perceptual Motor Performance of Kindergarten Children with Low Scores on Selected Physical Tasks," (Ph.D dissertation, University of Wisconsin, 1967), p. 106.

statistically significant differences in physical fitness and motor ability between kindergarten and primary grade children who have and who have not had experience in a movement exploration program in physical education. The Glover Physical Fitness Items for Primary Grades and the Iowa-Brace Test of Motor Ability for Elementary Schools were the measurement instruments used in the study. The alternative hypothesis that a movement exploration program results in higher levels of physical fitness and motor ability than a traditional program of physical education was accepted.⁵⁷

Two hundred fifty-six elementary students, K-3, at Arnold Elementary School, Jonesboro, Georgia, were the subjects for Hill's study. The major purposes of the study were three-fold. First, Hill investigated the reaction and movement times of children five to eight years old and their relationship to the variables of age and sex. Second, the study was to note if there were any interrelationships between reaction time, movement time, motor ability, and physical fitness for this age group. Lastly, the study was to determine role of reaction time and movement time in the prediction of motor ability. Hill constructed an electric device, reliable verification matched by scores on the Iowa Brace test, to test reaction time and movement time. Revision by McCloy of the Brace Scale of Motor Ability was utilized as the instrument to assess the motor ability of the subjects in the study. Glover's physical fitness test (standing broad jump, shuttle, run, seal crawl, and sit-ups)

⁵⁷ Mary Dee Leslie, "Effects of Movement Exploration on Physical Fitness and Motor Ability in Kindergarten and Primary Grades," (Ed.D. dissertation, University of Georgia, 1969), p. 97.

was the physical fitness instrument.⁵⁸ The conclusions for the study are as follows:

1. For reaction time, significant differences were found between each grade level except between second and third. While the difference between these two grade levels was not significant at any accepted level, the pattern of decreasing reaction time with advancing age was still apparent. In regard to sex differences, males proved to be significantly faster than females.
2. Reaction time and movement time were significantly related. Reaction time and movement were significantly related to motor ability. Both reaction time and movement time were significantly related to each of the measures of physical fitness.
3. In combination with any of the other variables considered, reaction time and movement time were of no significant value in prediction of motor ability. However, as single predictors or in combination with each other they could play a significant role in the prediction of motor ability.⁵⁹

Sinclair conducted a study to determine the progressive development in movement and movement patterns of children two to six years of age. Related objectives were to identify general characteristics which may be studied for appraisal of growth and development and to study variations in movement among normal subjects two to six years old. The general movement tasks that were tested were ascending stairs, bouncing (on a board), bouncing a large ball, carrying, catching, climbing, creeping, descending stairs, figure eight run, forward roll, galloping, hanging, task hitting, hopping, kicking, pulling, pushing, running, running high jump, skipping, sliding, standing broad jump, throw-

⁵⁸James Fred Hill, "Interrelations of the Reaction Time, Movement Time, Motor Ability, and Physical Fitness of Children Five Through Eight Years Old," (Ed.D. dissertation, University of Georgia, 1971) p. 106.

⁵⁹Ibid., pp. 74-75.

ing (small ball), walking, and walking the beam (2" beam). The characteristics common to many movement tasks which were selected for special study included dominance, opposition, dynamic balance, total body assembly, rhythmic two part locomotion, eye-hand efficiency in manual response to a static or moving object, agility, and postural adjustment. The study concluded that dynamic balance, opposition and symmetry, total body assembly, rhythmic locomotion, eye-hand efficiency, agility, and postural adjustment are the primary characteristics which appear to be significant in the movement development of young children.⁶⁰

Painter proposed a study to investigate the effects of a rhythmic and sensory motor activity program on body image, perceptual motor integration, and psycholinguistic competence of the kindergarten children. The subjects were divided into an experimental and a control group. The experimental group was given a systematic rhythmic and sensory motor activity program based on nine movement areas: visual dynamics, auditory dynamics, dynamic balance, spatial awareness, tactual dynamics, body awareness, rhythm, flexibility, and unilateral and bilateral movements. Specifically, a rhythmic and sensory motor activity program indicated the child's ability to draw a human figure, ameliorate the apparent distortion of body image concept, improve visual motor integrity, improve sensory motor integrity performance skills, and improve psycholinguistic abilities. Generally, the results

⁶⁰Caroline B. Sinclair, Movement and Movement Patterns of Early Childhood, Division of Educational Research and Statistics (Richmond, Virginia: State Department of Education, June, 1971).

demonstrated the effectiveness of such a program in a group setting within a regular public school kindergarten.⁶¹

The purpose of Jones' study was to investigate children's motor development and their uses of certain play materials from the time the children were 21 months old until their fourth birthday. The findings of the study were the following:

1. The successive levels of performance seem to be, in a large part, functions of increasing maturity as distinguished from experience or practicing alone. The qualitative play activities of children appear to be largely dependent upon intrinsic factors related to growth and development.
2. It appears that minimum performance may occur when a child has reached a given degree of neuromuscular maturation, but the development of the skill into graceful, co-ordinated performance depends upon continued practice.
3. Sex differences appeared even greater when opportunities for similar experiences were provided. In the non-locomotor activities there was great similarity between sexes in initial ages of performance, although the boys showed more interest in manipulation of parts and the girls in the development of skill.
4. In locomotor activities, the opportunity to have experience with materials appears to be the most important extrinsic factor influencing progress in the development of skill.
5. Certain conditions in home environment of these children appeared to be related to progress in play activities as evidenced by ages of reaching the various levels of performance:
 - playmate one to three years older than subject
 - parents living in home
 - availability of variety of play materials
 - outdoor play space.⁶²

⁶¹Genevieve Painter, "The Effect of a Rhythmic and Sensory Motor Activity Program on Perceptual Motor Spatial Abilities of Kindergarten Children," Exceptional Children, 33 (1966), pp. 113-116.

⁶²T. D. Jones, "The Development of Certain Motor Skills and Play Activities in Young Children," Child Development Monographs, 26 (1939), pp. 148-149.

Ninety-four children and 17 adults were the subjects of Jersild and Bienstock's study to investigate the ability of two to five year old children to keep time to the accompaniment of music. The findings of the study suggest that more opportunities should be afforded to children to participate in rhythmical activities to cultivate their interest in rhythmical expression, to encourage him to improvise patterns of his own, and to take part in activities that might lead to an improvement in his versatility, poise, balance, and muscular control in motor response to a rhythmical stimulus.⁶³

Buford conducted an experimental study of motor abilities of children in the primary grades. A summary of this study is as follows: first, evidence indicated a marked increase of motor control with age; second, the majority report a slight sex difference in favor of boys in rate and accuracy of movement and in favor of girls in steadiness; third, the index of right-handedness varies with age, being more pronounced in childhood; lastly, the most economical distribution of practice periods in learning favors short and frequent practice periods.⁶⁴

Goodenough and Brian conducted a study to analyze some of the specific factors involved in the acquisition of a novel motor skill by young children. General summary of the results is as follows: improvement in skill occurs in the course of the daily practice periods; more study needs to be conducted in relation to the effect of

⁶³A. T. Jersild, and S. F. Bienstock, "Development of Rhythm in Young Children," Child Development Monographs, 22 (1935), pp. 85 and 96.

⁶⁴Jeanette Johnson Buford, Experimental Study of Motor Abilities of Children in the Primary Grades (Baltimore, Maryland, 1917), pp. 1-62.

interruption of practice; the "better learners" showed a tendency toward grouping together of successes which were in excess of the chance expectancy, and this tendency was most marked on the days with the greatest number of successful throws; the poor learners showed only a slight departure from the chance expectancy at any level of performance; and the effect of pleasurable emotion aroused by success was shown in a decidedly greater tendency to throw beyond the mark in the case of those errors immediately following success. Some of the factors influencing success were (a) emotional factors, (b) the setting up of constant forms of undesirable motor procedures with subsequent deterioration in performance as practice in error continues, (c) false associations of cause and effect, (d) verbal expressions which to the child are indicative of desirable behavior, (e) incorrect focusing of attention, as shown when a child looks at his arm or hand instead of at the goal when throwing, and (f) frequent random changes in procedure without adhering to any one practice long enough to develop control of the particular motor pattern involved.⁶⁵

Clein and Stone devised a taxonomy of educational objectives in the psychomotor domain, moving from the lowest to the highest order of complexity. The following categories, objectives, indicate the step-by-step progression of how individuals learn to perform motor tasks:

⁶⁵Florence L. Goodenough and Clara R. Brian, "Certain Factors Underlying the Acquisition of Motor Skill by Pre-School Children," Journal of Experimental Psychology, 12 (1929), pp. 127-155.

1. perception
2. sensory stimulation
3. auditory
4. visual
5. tactile
6. taste
7. smell
8. kinesthetic
9. cue selection
10. translation
11. set
12. mental set
13. physical set
14. emotional set
15. guided response
16. imitation
17. trial and error
18. mechanism
19. complex overt response
20. resolution of uncertainty
21. automatic performance

Magdol feels that the kindergarten child needs to be exposed to such experiences as tactuality, kinesthetic development, gross motor training, rhythm, basic locomotor movements, fine motor training, auditory dynamics, and visual dynamics.

Many a child comes to the primary grades without the ability to control movement, without the ability to interpret sound or sight, without the ability to make the most of his modalities. Without the ability to use all of these channels effectively, the child, although normal in the accepted sense of the word, is handicapped in his approach to learning.⁶⁷

Cratty has indicated that studies on motor patterns of young children is an area that is in definite need of investigation.⁶⁸ There

⁶⁶Marvin I. Clein and William J. Stone, "Physical Education and the Classification of Educational Objectives: Psychomotor Domain," The Physical Educator, 27:1 (March, 1970), pp. 34-35.

⁶⁷Miriam Sper Magdol, Perceptual Training in the Kindergarten (San Rafael, California, 1971), p. 9.

⁶⁸Bryant J. Cratty, Perceptual-Motor Behavior and Educational Process (Springfield, Illinois, 1969), p. 65.

are several reasons why there has been a lack of interest in studying motor development in children, and why the information obtained from various investigations has not served a better purpose. First, from about 1930 to 1960 physical education programs have been primarily activity-centered, and little importance was placed upon basic skill development as an essential objective in the overall development of the child. Another problem is one of obtaining accurate descriptions, analyses, illustrations and suggestions for teaching. However, since the 1960's, educators have focused their attention of the young child through the realm of movement as being a significant element in the learning process.⁶⁹ Another reason for the difficulty in studying motor development has been that many studies have attempted to measure motor abilities indirectly in rather abstract situations not duplicated in the everyday life of the child. Children who are high in one motor skill may not be high in another skill. Consequently, investigations need to measure directly the proficiency level of items done in the ordinary course of the school day in order to know about the motor skill of children.⁷⁰ Hellebrandt and others stated that:

Much of the motor growth and development information available in the literature is descriptive. Furthermore, the picture is drawn with broad strokes that present changes in form and character of performance in the most general terms. Too little consideration has been given

⁶⁹Lolas E. Halverson, "Development of Motor Patterns in Young Children," Quest (May, 1969), p. 44.

⁷⁰Beth L. Wellman, "Motor Achievements of Preschool Children," Childhood Education, 13 (1937), p. 311.

to the details of the evolution of those spatial and sequential components of neuromuscular patterning which grant to purposeful movement the qualities so readily recognized as skill.⁷¹

However, there is presently more interest in conducting research in reference to a five year old's physical abilities that would aid in the development of a program entailing meaningful movement experience.

Growth Characteristics

Age five represents the completion of the period of early childhood.

At this age the child needs

. . . assurance that he is loved and valued, wise guidance, opportunity for plenty of activity, opportunity to do things for himself, freedom to use and develop his own powers, and opportunity to learn about his world by seeing and doing things.⁷²

The five year old is friendly, competent, interested in adult activities, project minded, proud of his possessions, and likes praise.⁷³ He has a better understanding of his world and is ripe for enlarged community experiences.⁷⁴ He is willing to accept rules of behavior and will conform to a group much more readily than he did at four. The five year old

⁷¹Frances A. Hellebrandt et al., "Physiological Analysis of Basic Motor Skills: Growth and Development of Jumping," American Journal of Physical Medicine, 40:1 (1961), pp. 16-18, 23.

⁷²Gladys Gardner Jenkins, Helen S. Shacter, and William W. Bauer, These are Your Children (Chicago, 1966), p. 357.

⁷³Glenn R. Hawkes and Damaris Pease, Behavior and Development from Five to Twelve (New York, 1962), p. 316.

⁷⁴Arnold Gesell and Frances L. Ilg, Infant and Children in the Culture of Today (New York, 1943), p. 247.

is becoming a self contained and independent individual.⁷⁵

In viewing the growth characteristics of the five year old child, one must remember that no two children are exactly alike. Each child is unique: all children are different.⁷⁶ Although children follow a basic growth pattern, they do so at their own individual rates. One state of growth does not suddenly terminate and the next begin. Children of any given chronological age will express varying levels of maturity and various stages of growth.⁷⁷ Therefore, the function of kindergarten is to foster the growth of the child as a well-balanced individual within his environment outside his parent's home. According to Northrup:

Kindergarten activities should not be designed to develop specific skills, except as they are incident to the child's emotional, social, intellectual, and motor development. Since rates of growth in each of these aspects vary with individuals, children should whenever be free to choose their activities individually. There should be a variety of activities, especially those involving development of the larger motor skills, for physical growth is normally rapid in five year olds.⁷⁸

Although each child develops as a whole, for convenience the author has discussed the growth characteristics applicable to a five year old child from three separate developmental, growth areas: physical development, social-emotional development, and mental development.

⁷⁵Betty Rowen, The Children We See (New York, 1973), p. 164.

⁷⁶Frances Martin, Know Your Child (New York, 1945), p. 3.

⁷⁷Gladys Andrews, Creating Rhythmic Movement for Children (Englewood Cliffs, 1954), p. 2.

⁷⁸Anne Holmes Northrup, Child Development Principles in Kindergarten Education (Greenfield, Indiana, 1954), p. 140.

Physical Development

Most five year olds are between 34 inches to 47 inches tall and weigh 38 to 46 pounds.⁷⁹ Overall physical growth is uneven and slow. The body is lengthening out and the hands and feet are growing bigger. The child still has a protruding abdomen and generally is top-heavy; consequently, he has difficulty in retaining his upright posture in times of stress.⁸⁰ Knee support is good, feet and arches normal, and head, neck, and shoulders show good symmetry.⁸¹ Generally speaking the girls are almost a year ahead of boys in their physical growth.⁸²

The hardest thing for a five year old to do is to be inactive. To have one's movements restricted is more exhausting than to be continually moving.⁸³ The child is active and eagerly needs purposeful, planned activity to enhance optimum growth.

The large muscles of the arms and legs are much better controlled than the small muscles of the hands and fingers. The five year old enjoys opportunities in which there is plenty of movement. He likes to run; climb, jump, and is able to skip, hop on one foot ten or more

⁷⁹Frances Martin, Know Your Child (New York, 1945), p. 7.

⁸⁰Sheila Stanley, Physical Education: A Movement Orientation, (New York, 1969), p. 3.

⁸¹Cecil V. Millard, Child Growth and Development in the Elementary School Years (Boston, 1958), p. 89.

⁸²Gladys Gardner Jenkins, Helen S. Shacter, and William W. Bauer, These Are Your Children (Chicago, 1966), p. 357.

⁸³Ruth Strang, An Introduction to Child Study (New York, 1960), p. 140.

steps, descend a ladder easily, and walk a straight line.⁸⁴ Although the child enjoys gross motor activities, he is still unsteady in his movements. Stanley stated that,

When five year olds run they have difficulty in stopping suddenly and in dodging. They will often choose to work close to the floor. They have difficulty in upward jumps and rarely land in other than a sort of collapse on the floor. They have a great deal of energy but little stamina. They tend to work with great speed and force.

The skills which are associated with ball games depend upon the establishment of the hand-eye and foot-eye coordinations which develop in accordance with the child's personal pattern of maturation. Generally speaking, the five-year old has difficulty in catching. Throwing, bowling, and bouncing are also hard to control. Kicking a stationary ball is much easier than kicking a moving one.⁸⁵

Butler stated that a kindergarten program in physical education should be planned in terms of helping each child move safely through space. Too often it is assumed that physical development will take care of itself; therefore, more attention is spent on small muscle development and skill, and gross motor skills may be so poor that a child literally cannot move safely and comfortably through space.⁸⁶

Gladys Andrews stated that:

In general, muscle development is uneven and incomplete, and the large muscle groups cry for attention. Greatest concentration should be on the development of such gross locomotor movements as jumps, hops, and leaps and on such body movements as swings, twists, and turns, bends and stretches. These movements serve as the foundation for a program in creative rhythm. Childhood experiences in

⁸⁴Mollis S. Smart and Russel C. Smart, Child Development and Relationships (New York, 1967), p. 195.

⁸⁵Sheila Stanley, Physical Education: A Movement Orientation (New York, 1969), pp. 3-4.

⁸⁶Grace K. Pratt Butler, The Three-, Four-, and Five-Year-Old in a School Setting (Columbus, Ohio, 1975), p. 7.

locomotor and body movements serve as a framework for the development of expression and understandings.⁸⁷

In the sphere of manipulation the five year old is interested in purposefully and skillfully using his materials to make replicas of the world around him.⁸⁸ His approach, grasp and release are direct, precise, and accurate in simple manipulative performances.⁸⁹ However, finer control in small muscle movements in relation to hand and eye coordination is not very good. This may be evident when the child tries to reach for things beyond an arm's length. He will usually have difficulty and have a tendency to knock items over.⁹⁰ In general, a five year old can handle a sled and a tricycle well; cut, paste, draw pictures; can handle most dressing; and manipulate tools geared to his size.⁹¹ He can also tie his shoe laces and fasten buttons.⁹²

The sense of touch in relation to the child's manipulative movements adds a great deal to cognition when exploration of the sensations

⁸⁷Gladys Andrews, Creative Rhythmic Movement for Children (Englewood Cliffs, 1954), p. 3.

⁸⁸Joseph L. Stone, and Joseph Church, Childhood and Adolescence (New York, 1968), p. 277.

⁸⁹Arnold Gesell, and Frances Ilg, The Child from Five to Ten (New York, 1946), p. 72.

⁹⁰Gladys Gardner Jenkins, Helen S. Shacter, and William W. Bauer, These Are Your Children (Chicago, 1966), p. 110.

⁹¹Glenn R. Hawkes and Damaris Pease, Behavior and Development Five to Twelve (New York, 1962), p. 318.

⁹²Mollie S. Smart and Russel C. Smart, Child Development and Relationships (New York, 1967), p. 195.

of hardness, softness, roughness, smoothness, warmth, and cold (for examples) are central learning experiences.⁹³ As the young child explores various sensory motor experiences, he is acquiring kinesthetic knowledge in the discovery of objects in his world.⁹⁴

By the age of five, handedness is established; ninety per cent are right handed.⁹⁵ Jones indicated that during the preschool period there is a gradual increase with age in the dominance of the right over the left hand. Jones felt that, since the less mature children of a given age are less advanced than the average child, a certain amount of immaturity in early years should be characteristic of a group of children who are persistently left handed.⁹⁶ Pryor stated that:

For the most part a child who is right-handed will be right-eyed, too, and one who is left-handed will tend to be left-eyed. However, there is a small group (estimated seven to ten per cent of the population) who are 'cross wired'--that is right-handed and left-eyed or vice versa. Extremely linear type people, for example, are frequently crossed wired.⁹⁷

Social-Emotional Development

The five year old period provides an opportunity to truly gain some insight into the social-emotional make-up of the child. The child

⁹³Marian E. Breckenridge and Margaret Nesbitt Murphy, Growth Development of the Young Child (Philadelphia, 1969), p. 326.

⁹⁴Ibid., p. 327.

⁹⁵Edward C. Britton and J. Merritt Winans, Growing From Infancy to Adulthood (New York, 1958), p. 23.

⁹⁶H. E. Jones, "Dextrality as a Function of Age," Journal of Experimental Psychology, 14 (1931), pp. 125-143.

⁹⁷Helen Brenton Pryor, As the Child Grows (New York, 1943), p. 207.

has fewer internal limitations than when he was a toddler and knows fewer external, socially-directed restraints than he will in the years ahead.⁹⁸ This is a time of initiative, a period of doing, of enterprise and imagination. It is a creative time when play and fantasy may suffice for the literal carrying out of desires. The five year old has a vivid sense of his own identity and is eager to explore the world outside of his home environment.⁹⁹ Overall, the child will

. . . present a remarkable equilibrium of qualities and patterns--of self-sufficiency and sociality, of self-reliance and cultural conformance, of serenity and seriousness, of carefulness and conclusiveness, of politeness and insouciance, of friendliness and self-containedness.¹⁰⁰

Self-assurance, confidence in others, and social conformability are cardinal personal-social traits at five.¹⁰¹ The five year old child

. . . may change from a youngster who seems to have no initiative and who only imitates what another child does, into a child who asserts his preferences, expresses his ideas, and carries them out so that both teachers and children have a genuine respect for him.¹⁰²

The five year old is entering the "I", egocentric period. This is an age where the child considers himself as the center of his environment and feels he is a star performer.¹⁰³ Characteristics of

⁹⁸ Joseph L. Stone, and Joseph Church, Childhood and Adolescence (New York, 1968), p. 278.

⁹⁹ Glenn R. Hawkes and Damarius Pease, Behavior and Development from Five to Twelve (New York, 1962), p. 102.

¹⁰⁰ Arnold Gesell and Frances L. Ilg, Infant and Child in the Culture of Today (New York, 1943), p. 248.

¹⁰¹ Arnold Gesell, The First Five Years of Life (New York, 1940), p. 57.

¹⁰² Marguerite Rudolph and Dorothy H. Cohan, Kindergarten--A Year of Learning (New York, 1964), p. 21.

¹⁰³ Gladys Andrews, Creative Rhythmic Movement for Children (Englewood Cliffs, 1954), pp. 2-3.

this mode of behavior may be noted by such statements as: "Look at what I'm doing" . . . "I am going to do that" . . . "I know how" In order that the child will develop a balanced amount of social attitudes and behavior within this framework, he should be aided in developing a sense of right and wrong in relation to experiences that will enhance a satisfying feeling of himself as an individual within a social group.¹⁰⁴

The social-emotional make-up of the five year old is a combination of a realistic and pragmatic nature. As a realist the child wants to see proof before he believes; he is factual and literal rather than imaginative. The realistic quality of a child can be noted during his play activities. He will act out roles in play which represent daily occurrences. A five year old is very interested in how society functions, and there are many opportunities when dramatic play can be used to enhance concept development.¹⁰⁵ His pragmatic nature is noted in his serious, empirical, and direct approach to any task.¹⁰⁶

The child who enters kindergarten will enjoy the intuitive work of other children. The opportunity to express one's natural joy in color, music, inventiveness, dramatic play and construction will not be as richly experienced except through school groups.¹⁰⁷

¹⁰⁴Lester D. Crow and Alice Crow, Child Development and Adjustment (New York, 1965), p. 274.

¹⁰⁵Betty Rowen, The Children We See (New York, 1973), p. 166.

¹⁰⁶Arnold Gesell and Frances L. Ilg, The Children From Five to Ten (New York, 1946), p. 66.

¹⁰⁷Educational Services for Young Children, Educational Policies Commission, NEA (Washington, D.C., Dec. 1945), p. 51.

By five the ability to identify with the world beyond his immediate self, curiosity about what lies beyond himself, readiness to share, and the diminishing dependence on adults for direction and companionship make children indispensable to each other within a kindergarten setting.¹⁰⁸

In discovering one's role as an individual within a social peer group the five year old is exceedingly sensitive to the emotional behavior of those around him. Actions speak louder than words to children of this age.¹⁰⁹ The child is developing social sensitivity--an awareness of himself in relation to others and an appreciation of the feelings and rights of other people.¹¹⁰ The child is less likely to become attached to anyone who makes advances; he is definitely swayed by affection.¹¹¹ Hagman conducted a study of companionship of preschool children. It was found that individual children vary greatly in their selection of companions. Some chose those similar to themselves, others chose companions who had very dissimilar characteristics. Some reacted to a companion during more than 40 per cent of the opportunities provided; others reacted to less than five per cent of them.¹¹²

At age five, children will participate in a large group if supervised,¹¹³ but cooperative play/work is best in a group of three to six.

¹⁰⁸ Marguerita Rudolph, and Dorothy H. Cohen, Kindergarten, A Year of Learning (New York, 1964), p. 22.

¹⁰⁹ Frances Martin, Know Your Child (New York, 1945), p. 10.

¹¹⁰ Selma H. Fraibert, The Magic Years (New York, 1959), p. 189.

¹¹¹ Helen Brenton Pryor, As The Child Grows (New York, 1943), p. 212.

¹¹² E. P. Hagman, "The Companionship of Preschool Children," Studies in Child Welfare, 7:4 (1933).

¹¹³ Edward C. Britton, and J. Merritt Winans, Growing from Infancy to Adulthood (New York, 1958), p. 28.

The child needs assistance in not only focusing his primary concern on his individual needs, but should begin collective cooperation.¹¹⁴

Group play does not necessarily mean an exchanging of ideas and cooperation. Several children may try to take a leadership role and impose their ideas on each other. It is a big step forward when one child can accept the lead and ideas of another. An early opportunity for co-operative play is essential in order to enhance real group play and social involvement.¹¹⁵ Within this setting a child needs a chance to enjoy the work of his peers and to have his work enjoyed.¹¹⁶

Socially, play not only allows the child to receive feedback about his own behavior but aids in establishing a self concept which facilitates personality development.¹¹⁷

With regard to competition, children between four and six years seem motivated by the desire to excel and demonstrate an increasing amount of competitive interest.¹¹⁸ Competitive or cooperative behavior is affected by the attitudes of those people within the child's environment. If cooperation is stressed, the child will become less competitive;

¹¹⁴Arnold Gesell, and Frances L. Ilg, The Child from Five to Ten (New York, 1946), p. 65.

¹¹⁵O. M. Woodward, The Earliest Years (London, 1968), p. 54.

¹¹⁶Educational Services for Young Children, Educational Policies Commission, NEA (Washington, D.C., Dec. 1945), p. 52.

¹¹⁷G. H. Mead, Mind, Self, and Society (Chicago, 1962), pp. 150-164.

¹¹⁸Cecil V. Millard, Child Growth and Development in the Elementary School Years (Boston, 1958), p. 231.

if competition is a part of the social mores, rivalry becomes a strong motivation of behavior.¹¹⁹ Stanley stated:

Kindergarten children have a greater appreciation of fun and enter wholeheartedly into games that are simple enough for them to comprehend. Their egocentric nature and their often meticulous interpretation of rules and exaggerated concern for fairness, however, make it difficult for them to cope with a highly competitive game. Their desire to participate personally in most games, together with their characteristic energy, make it prudent to use games in which all are actively participating all the time. It is the joy of doing ¹²⁰that appeals to this age; not the joy of winning.

The five year old's unpleasant emotions will probably include anxiety, shame, disappointment, and envy.¹²¹ It is important that the child should openly express his fears, anger and guilt feelings as soon as he is able to do so. If he represses his feelings, or is afraid to express them, they may become more intense and result in difficult behavior patterns, possible withdrawing into himself, refusing to make relationships and finding difficulty in learning.¹²² If a child is to cope with his environment in order to satisfy his basic needs and to attain a feeling of security, his emotional tensions will be reduced as his self-confidence increases. The child needs

¹¹⁹Lester D. Crow, and Alice Crow, Child Development and Adjustment (New York, 1965), p. 275.

¹²⁰Sheila Stanley, Physical Education: A Movement Orientation (New York, 1969), p. 5.

¹²¹Nancy Bayley, "The Emotions of Children: Their Development and Modification," Childhood Education, 21:3 (1944), pp. 156-159.

¹²²D. M. Woodward, The Earliest Years (London, 1968), p. 53.

guidance in achieving a better integrated and happier personality.¹²³

A summary of the general, social-emotional, behavioral characteristics of a five year old child is the following: the child is stable, demonstrating a good balance between self-sufficiency and sociability; the child is eagerly venturing from his home setting to a new and larger environment; the child is beginning to be capable of self-criticism; the child appreciates opportunities in which he has a responsible role; and, the child is noisy and vigorous and what to engage in purposeful activity.¹²⁴

Mental Development

Intellectual growth is most noticeable in the kindergarten child throughout the school year--his constantly increasing power of reasoning, his deep and often unanswerable questions, his love of guessing games or riddles, his absorption in problem solving, his fascination with a variety of mathematical concepts, and his spontaneous interest in symbols. The children in the kindergarten need and want a chance to exercise their fast growing minds. Yet they do not learn primarily by passive attention to the teacher or mere listening to information. Exercise of the mind at this age comes about as a part of the total activity of the child and is accompanied by a sense of urgency to find out now, on the spot.¹²⁵

Intellectually the five year old is active, independent, and adventurous. Although interests are fleeting, he enjoys exploring many

¹²³Bayley, pp. 156-159.

¹²⁴Gladys Gardner Jenkins, Helen S. Shacter, and William W. Bauer, These Are Your Children (Chicago, 1966), p. 357.

¹²⁵Marguerita Rudolph, and Dorothy H. Cohen, Kindergarten: A Year of Learning (New York, 1964), p. 20.

different situations.¹²⁶ Realization of other people and their belongings is a part of intellectual development. The child is beginning to know and think in an elementary way about himself and other people.¹²⁷ The child approaches a task in a purposeful and constructive fashion; knowing what he plans to do, before he does it.¹²⁸ The child realizes that his thoughts and actions are not the same, that his thoughts cannot magically produce effects.¹²⁹ He has learned that most events in this world are caused by something. When he asks questions it is to find out about causes and effects.¹³⁰ Although there may be short upward flights of imagination, abstraction is minimal; the child's thinking is very concrete and remains within solid realities.¹³¹ A child will have more perception of and interest in completed results when he is manipulating materials; the child learns best as a doer.¹³² However, even though the five year old is capable of more prolonged voluntary attention, he is still not mature enough to fix his own attention upon a task in spite of distraction.¹³³ A five year old can

¹²⁶Lester D. Crow, and Alice Crow, Child Development and Adjustment (New York, 1965), p. 274.

¹²⁷D. M. Woodward, The Earliest Years (London, 1968), p. 55.

¹²⁸Jenkins, Shacter, and Bauer, p. 357.

¹²⁹Selma H. Fraiberg, The Magic Years (New York, 1969), p. 180.

¹³⁰Betty Rowen, The Children We See (New York, 1973), p. 165.

¹³¹Arnold Gesell, and Frances L. Ilg, Infant and Child in the Culture of Today (New York, 1943), p. 249.

¹³²Arnold Gesell, The Mental Growth of the Pre-School Child (New York, 1926), p. 277.

¹³³Helen Brenton Pryor, As the Child Grows (New York, 1943), p. 208.

maintain interest in one kind of play for approximately 12 to 14 minutes.¹³⁴

The five year old child is beginning to use his language to satisfy his curiosity. Previously he looked, touched, and tested; now he begins to question. The typical speaking vocabulary is approximately 2,200 words.¹³⁵ The fluency of his language is vividly evident in his emotional control. Instead of screaming in rage and having a temper tantrum, he is more likely to translate his anger and frustration into words.¹³⁶

There is a steady increase in the child's ability to reason. Concept learning cannot be acquired from just verbal learning; the use of creative rhythmic movement may be used as a medium to help the child grasp the meaning of a concept.¹³⁷ Young children have a tendency to memorize items in wholesale bunches which may not be organized in a systematic manner. Therefore, understanding is not a necessity in order to memorize.¹³⁸ For example, number vocabulary is usually acquired before an appreciation of its meaning; the child may be able to count to 10 but not be able to comprehend the difference between five and 10.¹³⁹ The child has a great deal of difficulty in recognizing

¹³⁴Ruth Strang, An Introduction to Child Study (New York, 1960), p. 149.

¹³⁵Edward C. Britton and J. Merritt Winans. Growing from Infancy to Adulthood (New York, 1958), p. 29.

¹³⁶D. M. Woodward, The Earliest Years (London, 1968), p. 52.

¹³⁷Gladys Andrews, Creative Rhythmic Movement for Children (Englewood Cliffs, 1954), p. 4.

¹³⁸Joseph L. Stone and Joseph Church, Childhood and Adolescence (New York, 1968), p. 314.

¹³⁹Helen Brenton Pryor, As the Child Grows (New York, 1943), p. 210.

the symbol of a number and relating the number to practical experience of objects. He does not understand the twoness of two or the sixness of six.¹⁴⁰ Bruner and others have indicated that several characteristics can be combined to form broad classes of concepts. For example, the concept of distance is based upon a starting point and a stopping point and the span in between. Distance would be considered a relationship concept. These types of concepts are difficult for children to learn. Another category is disjunctive concepts. These involve either/or types of judgments. For example, a child can either kick a ball across a line to score or pick the ball up and throw the ball across the line. Learning the various criteria and the exceptions that might constitute a disjunctive concept makes the acquisition of these concepts difficult for the young child.¹⁴¹

The five year old is going through a pre-schematic developmental stage in the realm of space, color and design.¹⁴² Spatial relationships are still limited, and a child is just beginning to relate more advanced meaning to this realm.¹⁴³ Elementary spatial orientation is evident by which is his right hand and which is his left hand. However, he still cannot distinguish between the left and right hands of other people.¹⁴⁴

¹⁴⁰O. M. Woodward, The Earliest Years (London, 1968), p. 57.

¹⁴¹Carol Seefeldt, Curriculum for the Preschool-Primary Child (Columbus, Ohio, 1976), p. 85.

¹⁴²Karl C. Garrison, Growth and Development (New York, 1959) p. 296.

¹⁴³Woodward, p. 56.

¹⁴⁴Helen Brenton Proor, As the Child Grows (New York, 1943), p. 208.

However, the egocentric nature of the child limits his ability to define space as existing independently, apart from his immediate personage. The young child has difficulty rotating objects conceptually and needs assistance in acquiring the capability to mentally manipulate objects.¹⁴⁵ The child also has vague concepts of time. He is just beginning to develop a sense of time. Any aspects of time he knows are those connected with events which are closely related to his own way of life.¹⁴⁶

Generally, a five year old child knows the primary colors.¹⁴⁷ Martin found that preschool children named blue most often as their favorite color with red, green, and yellow following in order.¹⁴⁸ However, the child will often choose a color in accordance to an emotional appeal with no relationship to reality.¹⁴⁹

In relation to design, the child is capable of solving simple geometric relations. For example, he is able to take the halves of two triangles and make a rectangle.¹⁵⁰ He can also solve

. . . the Goddard formboard with directness and dispatch adjusting movement to perception, and rarely using the method of kinesthetic trial and error frequently seen at three and four. He can also insert in sequence a series of nested boxes, making immediate practical judgments as to succession and orientation.¹⁵¹

¹⁴⁵Jeralyn J. Plack and Jacqueline Shick, "Development of Space Perception," Journal of Physical Education and Recreation, 47:7 (1976), p. 56.

¹⁴⁶Glenn R. Hawkes and Damaris Pease, p. 318.

¹⁴⁷Frances Martin, Know Your Child (New York, 1945), p. 8.

¹⁴⁸Winifred Rand, Mary E. Sweeny, and E. Lee Vincent, Growth and Development of the Young Child (Philadelphia, 1954), p. 311.

¹⁴⁹Karl C. Garrison, Growth and Development (New York, 1959), p. 296.

¹⁵⁰Arnold Gesell, The First Five Years of Life (New York, 1940), p. 53.

¹⁵¹Ibid.

Within the realm of mental development, the child must use all his knowledge such as time, space, numbers, symbolic meanings, and communication in order to solve any problem.¹⁵² It is important to let the child make as many decisions as he has data and information to manage. The child should be helped to think about specific problems and evaluate his decisions.¹⁵³ Nixon felt that:

For most children problem solving becomes a group activity--a natural development if encouraged. Children in small groups usually exchange ideas Kindergarten is probably the best spot in all of life in which to work toward the solution of interpersonal relationships The children can be helped to learn to solve present problems and to be somewhat prepared to face whatever problems the future may hold Problem solving on the kindergarten level is both a purpose and a means. The most important aspect and also the most evident of the problem solving method is that it teaches individuals to solve problems. In addition, successfully facing and surmounting a problem adds something to any individual's feeling of confidence and probably to his willingness to attempt a new problem.¹⁵⁴

Hertzberg conducted a study to determine the relationship of the mental development of kindergarten children to motor ability. Forty-six kindergarten children in the Training School of Colorado State Teachers' College at Greeley were given the Stanford Revision of the Binet Scale and eight motor tests developed by Hertzberg and other investigators. The primary results indicated that motor development alone does not correlate significantly with mental development. By the time children are in kindergarten, qualities of abstract intelligence, such as

¹⁵²Ruth H. Nixon and Clifford L. Nixon, Introduction to Early Childhood Education (New York, 1971), pp. 73-74.

¹⁵³Frances Martin, Know Your Child (New York, 1945), p. 10.

¹⁵⁴Nixon, pp. 64065.

concentration and discrimination, are more important than motor development in indicating the mental maturity of the child.¹⁵⁵ A primary concern of this study indicated a need to develop a battery of tests involving motor tasks which would adequately measure the mental capacity of kindergarten children.

Play and Physical Education Programs

The basis for movement activities can be justified by a child's need to play.¹⁵⁶ Hymes said that:

Play is learning. Play is thinking time for young children. It is language time. It is memory time, planning time, investigating time. It is organization of ideas and time, when the child uses his mind and body and his social skills and all his powers in response to the stimuli he has met.¹⁵⁷

Peterson stated that play activities and experiences significantly affect a child's way of learning.¹⁵⁸ Lewis supported the importance of play in the learning process by stating that the child must be able to reason out a problem situation in order to demonstrate successful movement in imaginative play.¹⁵⁹

¹⁵⁵Oscar E. Hertzberg, "The Relationship of Motor Ability to the Intelligence of Kindergarten Children," Journal of Educational Psychology, 20 (1929), pp. 507-519.

¹⁵⁶Lillian De Lissa, Life in The Nursery School in Early Babyhood (London, New York, Toronto, 1949), p. 190.

¹⁵⁷James L. Hymes, Teaching the Child Under Six (Columbus, Ohio, 1968), p. 98.

¹⁵⁸Helen Thomas Peterson, Kindergarten, The Key to Child Growth (New York, 1958), p. 130.

¹⁵⁹M. M. Lewis, Language, Thought and Personality (New York, 1963), p. 126.

Block summarized these thoughts by stating that

. . . moving is the very essence of play, and, thereby, the young child who is learning to move is constantly experimenting, exploring, making decisions, and creating in accordance with his present and past experiences.¹⁶⁰

Arnaud indicated that there has been a shift in attitude toward the importance of children's play within the educational process. This new emphasis appears to reflect the confluence of four independent trends. First, ethologists conducted studies which have indicated that the more intelligent an animal, the more playful. Second, educators are beginning to question the validity of a strictly cognitive curriculum which has been established on the basis of what adults feel children need to learn. Third, Piaget has had an indirect influence by stressing the importance of a child's interaction with his environment in relation to "the how" a child proceeds through the learning process. Lastly, it is felt that self-realization and self-actualization may be promoted through play.¹⁶¹

Fales conducted a study to determine the vigorousness of play activities of the preschool child in relation to the constant and ever-changing mobility and imagination of the child. A rating scale was constructed in order to analyze 651 play skills that were accumulated from observation and diary records. Examples of these activities included the movement elements of pushing, pulling, turning, twisting,

¹⁶⁰ Susan Dimond Black, Me And I'm Great: Physical Education for Children Three Through Eight (Minneapolis, Minnesota, 1977), p. 2.

¹⁶¹ Sara H. Arnaud, "Some Functions of Play in the Educative Process," Childhood Education, 51:2 (1974), pp. 72-78.

running, rolling, hanging, climbing, walking, jumping, throwing, kicking, and skipping. Completion of this study provided for the construction of a reliable rating scale of the vigorousness of the activities of pre-school children. The scale consisted of activities ranging in vigorousness level from one (not at all vigorous) to 48 (very vigorous).¹⁶²

A study of the reactions of kindergarten, first, and second grade children to specific construction play materials was undertaken by Farwell. Two hundred sixty-nine subjects were introduced to specific constructive play materials and were given opportunities to individually choose the materials. The children could do whatever they wished with the materials during 30 minutes a day for 14 days. General analysis of the results indicated the following four conclusions: (1) Boys prefer to spend more time with building materials whereas the girls preferred water-color painting and clay modeling. (2) Girls showed more interest in humans and furniture while the boys showed greater interest in vehicles. (3) There is a substantial relationship between motor ability and chronological age, mental age, and quality of workmanship. (4) Correlations were low in regard to intelligence, and in regard to the average number of materials chosen per day and mental age and workmanship.¹⁶³

Lieberman conducted a study which supported a positive relationship between creativity and play activity with kindergarten subjects.

¹⁶² Evaline Fales, "A Rating Scale of the Vigorousness of Play Activities of Pre-School Children," Child Development, 8:15 (1937) pp. 15-46.

¹⁶³ L. Farwell, "Reactions of Kindergarten, First, and Second Grade Children to Constructive Play Material," Genetic Psychology Monographs, 30 (1930), pp. 431-554.

Children who were rated as the most playful also showed creative skill, indicated by their abilities on tasks such as suggesting novel ideas for the use of familiar toys.¹⁶⁴

Siedentop proposes that play is intrinsically meaningful, and that physical education is a species of play.¹⁶⁵ Consequently, the question is raised as to when motor programs for young children should begin. Cherry noted the importance of directed movement for children as young as two and one-half years old. Although a stimulating play environment should be arranged for the child, this should not mean that the child is left without teacher direction. Subtle guidelines need to be provided to suggest a way for the child but not the pattern.¹⁶⁶ Cherry stated that:

A child does not want to be told to 'Do whatever you want to do.' This only leads to confusion and frustration. He responds best to gentle guidance in which he is encouraged to interpret the ideas and actions in his own way. Creativity is nurtured; originality is applauded.¹⁶⁷

With financial assistance from the government, the Head Start Programs became the primary impetus in igniting preschool education. Involvement in early childhood physical education has been supported by such facts that planned movement experiences contribute to a young

¹⁶⁴J. N. Lieberman, "Playfulness and Divergent Thinking: An Investigation of Their Relationship at the Kindergarten Level," Journal of Genetic Psychology, 107 (1966), pp. 219-224.

¹⁶⁵D. Siedentop, Physical Education: Introductory Analysis (Dubuque, Iowa, 1972), p. 185.

¹⁶⁶Clare Cherry, Creative Movement for the Developing Child (Belmont, CA, 1971), p. 6.

¹⁶⁷Ibid.

child's development, movement is a primary part of the young child's learning, and children will develop and refine motor patterns if programs are designed to help the child learn at his stage of development in an environment designed for him.¹⁶⁸ Landreth feels there are intricate relationships between motor, speech, intellectual, and emotional behavior in the kindergarten and the first two grades.¹⁶⁹ Therefore, motor programs should be developed in order that "motor behavior can be studied within the context of an individual's total behavior and life history, rather than in a dissociated series of age- and sex-related hop-skip-jumps."¹⁷⁰

Recent literature supported the concept of the importance of movement activities for the preschooler within an instructional environment. Werner stated that "movement experiences through instruction are essential to normal growth and development during early childhood."¹⁷¹ Moffitt provided information indicating a linkage between play and the general objectives of physical education. He stated that the primary benefits from a planned, directed, play period are toward the development of motor patterns, cognitive development, and perceptual development (spatial, figure-ground, whole-part, classification, sequence, and clue awareness).¹⁷² Moffitt stressed that "play activities should be

¹⁶⁸Betty M. Flinchum and Margie R. Hanson, "Who Says the Young Child Can't," JOPHER (June, 1972), p. 16.

¹⁶⁹Catherine Landreth, Early Childhood (New York, 1967), p. 179.

¹⁷⁰Ibid.

¹⁷¹Peter Werner, "Physical Education During the Pre-School Years," The Physical Educator, 29:4 (1972), p. 183.

¹⁷²Mary W. Moffitt, "Play As a Medium for Learning," JOPHER, 43:6 (1972), pp. 45-47.

planned for optimal learning conditions. It means that teaching becomes a process of diagnosing the needs of children and planning for individual progress in a total program.¹⁷³

Gerhardt stated that the justification for the school curriculum is verified through a sequence of opportunities which will help each child build an understanding of and an ability to cope with his world. Gerhardt's book entitled Moving and Knowing is geared toward educating three to six year olds with the role of body movement in relation to the child's conceptualization of space. Within an interdisciplinary rationale, the book provides teachers with specific ideas to devise body movement experiences for the young child.¹⁷⁴

Programs are emerging which allow the child to develop an awareness of the various movement possibilities of his body in order to use it fully. Recent research with brain damaged children or those considered slow learners has indicated the importance of the body as the frame of reference from which perceptual judgments are formed.¹⁷⁵ Porter indicated that all children should be given opportunities for

- vigorous activity, exercise, and adventure
- learning through exploration, efficient body management
- expressing feelings and communicating ideas through movement
- inventing and creating movement patterns, games and dances
- learning skills of games, sports, aquatics, and dances
- playing, organizing, and managing games, sports, and dances for their own enjoyment.¹⁷⁶

¹⁷³Ibid., p. 47.

¹⁷⁴Lydia A. Gerhardt, Moving and Knowing (Englewood Cliffs, N. J. 1973), pp. xv-xvii.

¹⁷⁵Lorena Porter, Movement Education for Children, American Association of Elementary-Kindergarten-Nursery Educators (NEA Center, 1969), p. 10.

¹⁷⁶Ibid., p. 14.

A program of enrichment in relation to the benefits of preschool academic readiness was established at the McGuffey Nursery School, Miami University, Oxford, Ohio, to help children investigate their own environments. The difference of this preschool program to most of the ones already in existence was the emphasis on creative movement experiences; and with the emphasis on movement, the primary objects was the physical skill development of the children. Space, force, time, and flow were the guidelines in establishing lessons in stability, locomotion, and manipulation. Caution was taken to avoid providing a pre-academic enrichment program during early childhood at the expense of motor deprivation.¹⁷⁷

A perceptual motor kindergarten project was initiated in Seattle, Washington, to determine what extent children entering kindergarten are ready for first grade reading experiences. Using a multisensory approach, 12 kindergarten classes were taught identical movement skills. Results indicated that there is greater understanding and transfer of learning if the direction of each movement is used to reinforce the movement.¹⁷⁸

Stecher suggested developing a program of music and movement in relation to teaching concepts which revolve around the young child's life experiences. This represented only one aspect of a broad approach to develop an aesthetic and productive awareness of sound, song, and movement

¹⁷⁷Peter H. Werner, "Movement Experiences for Preschool Children," The Physical Educator, 32:4 (1975), pp. 182-185.

¹⁷⁸Paul Smith, "Perceptual-Motor Skills and Reading Readiness of Kindergarten Children," JOHPHER, 4:4 (1970), pp. 43-44.

as media for the child's own inventive expression, both verbal and non-verbal.¹⁷⁹

An action program in motor development was the Dayton Program for developing sensory and motor skills in three, four, and five year old children. A program of sequentially arranged motor activities evolved by taking a child where he was developmentally and taking him forward at his own rate rather than imposing activities which the teacher felt were appropriate. A child was allowed early success experiences in the beginning stages. As he continued to progress to more complex movements and reached a level of performance which became more difficult, the activity was broken into its component parts, and he engaged in a variety of appropriate movement experiences.¹⁸⁰

In order to improve the physical education curriculum at the K-2 level, Gordon conducted a study to develop and evaluate specific behavioral objectives for physical education in grades K-2. Sixty-three elementary physical education authorities, evidenced by their writings and other professional contributions, ranked a set of behavioral objectives in order that the selection of specific instructional activities could more readily fulfill the general objectives of physical education. Mental development, body handling development, and social development were the three major types of behavioral objectives for K-2 levels as evidenced by the elementary physical education experts.

¹⁷⁹Miriam B. Stecher, "Concept Learning Through Movement Improvisation," Young Children (Jan. 1970), pp. 143-153.

¹⁸⁰William T. Braley, "The Dayton Program for Developing Sensory and Motor Skills in Three, Four, and Five Year Old Children," Perceptual-Motor Foundations: A Multidisciplinary Concern (Washington, D.C.: AAHPER, 1969), pp. 109-120.

Closely relating to movement education, the greatest emphasis was upon mental development. This objective stressed a developmental approach to working with children and rejected those activities that would appear in the area of physical development. Highly related to mental development, the second factor was concerned with body handling development objectives in relation to social development, physical development, and object handling pattern development. The primary difference to the first factor is the high priority placed on body handling objectives. The third factor stressed social development with minimal emphasis in physical development and object handling skills. Results of these three factors indicated the priority of concepts for the behavioral objectives.¹⁸¹

Results from Gordon's et al., study to determine the relative importance of physical education objectives for grades K-2, noted specific experiences that a child should have. Within the area of social development, the most important experiences should contain some element of positive ego-building. The significant objectives within the mental development were geared toward the learner's concept of body image, concepts of space, and of one's relation to space. The objectives receiving the highest priority in the body handling pattern development spectrum were experiences involving performances revealing understanding of concepts of balance, body-space relationships, laterality and movement-time discrimination. Activities stressing direct

¹⁸¹Larry Dean Gordon, "Development and Evaluation of Behavioral Objectives for Physical Education Grades Kindergarten Through Second," (Ed.D. doctoral dissertation, University of Missouri, Columbia, 1971), p. 215.

tasks of propulsion (throw, hit, bounce) and receipt of objects ranked highest within the area of object handling pattern development. Physical development should be aimed toward coordinated movements involving the use of the arms and hands.¹⁸²

Evans conducted a study to investigate the effects of a planned physical education program on auditory discrimination ability, verbal and nonverbal, of kindergarten children. One hundred subjects selected from three kindergarten classes in the Bolivar, Missouri public school system constituted the three research groups. Experimental group one received physical education experiences designed to improve auditory discrimination. Experimental group two would have classroom experiences designed to improve auditory discrimination. The control group would have the usual classroom work without prescribed treatments.¹⁸³ The results were as follows:

1. Auditory discrimination, both verbal and nonverbal, is related to reading readiness at the kindergarten age: verbal ability having the highest relationship on all variables compared to the boys.
2. Significant differences for sex were found among the experimental treatment group and the control group. The differences for boys appeared to indicate greater change from undergoing the experimental physical program and least change in the control. Girls showed no consistent pattern of change.
3. The sequential program for kindergarten children in auditory discrimination ability designed for classroom

¹⁸²L. D. Gordon, Margaret M. Thompson, J. W. Alspaugh, "The Relative Importance of Various Physical Education Objectives for Grades K-2," Research Quarterly, 44:2 (May, 1973), pp. 192-196.

¹⁸³Mildred May Bailey Evans, "The Effects of a Physical Education Program on Auditory Discrimination Ability, Verbal and Nonverbal, of Kindergarten Children," (Ed.D. doctoral dissertation, Michigan State University, 1971), p. 159.

and for physical education program was viable. The one factor affecting the viability of the program was motivation.¹⁸⁴

Leighty made a study to ascertain whether or not there are any significant differences in personal and social adjustment between five year old children who have participated in a specially organized and conducted physical education program in the kindergarten, and those who have not had such a program. An experimental and a control group, approximately 25 randomly selected children in each, were established. For a full school year the experimental group received a specifically planned physical education program while the control group went through the school year in the customary manner of having no physical education. The California Test of Personality, Primary, Form BB, and the Peabody Test of Physical Fitness were administered to both groups at the beginning and the end of the school year. Results indicated that the kindergarten children who participated in the planned physical education program did not make a significant gain in personality development, weight score, pulse rate score, shuttle run, burpee score, volleyball throw score, or ball bouncing ability over the kindergarten children who participated in the control group.¹⁸⁵

To summarize the movement factors which may be appropriate in a movement orientated program, the following chart notes the attributes of movement in relation to some of the early childhood researchers.¹⁸⁶

¹⁸⁴ Ibid., pp. 58-60.

¹⁸⁵ Doris Lee Leighty, "Relationship of a Planned Program in Physical Education to Personality Development in the Kindergarten Child." (Ed.D dissertation, George Peabody College for Teachers, 1968), p. 297.

¹⁸⁶ Marianne Fostig, Movement Education: Theory and Practice (Chicago, 1970), pp. 32-33.

Attributes of Movement	Guilford ¹	Nicks and Fleishman ² Summary of 78 Studies	Mosston ³	Kephart ⁴	Frostig and Maslow
Coordination and Rhythm	Coordination Gross body Hand dexterity Finger dexterity	Coordination Gross body Multiple limb		Coordination Gross motor Eye-hand Integration of both sides of body	Coordination Across body axis of different muscle groups, simultaneously Rhythm Jerky vs. smooth movements Synchrony prerequisite (See Doll ⁵)
Speed and Agility	Impulsion General reaction time Tapping Articulation speed Motor Speed Arm-Hand-Finger	Speed Limb Movement Running Agility Change of direction during movement	Agility Take-off Change of posture during movement	Receipt and Propulsion Contact: Reaching, grasping, releasing Manipulation to obtain information	Speed Continuous movement in space Running Agility Initiation of movement Change of direction

Attributes of Movement	Guilford ¹	Nicks and Fleishman ² Summary of 78 Studies	Mosston ³	Kephart ⁴	Frostig and Maslow
Flexibility	Flexibility Trunk Leg	Flexibility - Speed	Flexibility Spine and pelvis Shoulder girdle Bending forward and side-ways	(Kephart uses the term for what is here defined as agility)	Flexibility Maximum extension in trunk and limbs Rotation of joints
Strength	Strength General Trunk Limbs	Strength Explosive Dynamic Static	Strength Shoulder girdle and arms Upper back Abdomen Legs		Strength General, specific muscle groups
Endurance		Endurance			Endurance Sustained movement over time (See Cureton ⁶)

Attributes of Movement	Guilford ¹	Nicks and Fleishman ² Summary of 78 Studies	Mosston ³	Kephart ⁴	Frostig and Maslow
Balance	Static Precision Arm steadiness Dynamic Pre- cision Dynamic balance Arm aiming Hand aiming	Balance Static Dynamic Object	Balance Movements on ground Movements on appara- tus Movements while supported by another person	Balance Maintenance Dynamic relation- ship to gravity	Balance Static Dynamic Object

Conditions contributing to a stable basis of kindergarten physical education evolve within the aims of the program.¹⁸⁷ Sinclair made the following suggestions concerning the development of a physical education program for young children:

1. Through age five, approximately one-half of the school day should be devoted to activity which is largely physical.
2. Though both gross and fine motor activities should be included, the younger the child the greater emphasis should be on gross motor activities.
3. Though both boys and girls need much vigorous movement for best development, it is probable that boys will profit from movement of greater duration and intensity.
4. The general characteristics of movement--opposition and symmetry, dynamic balance, total body assembly, rhythmic two part locomotion, eye-hand efficiency in manual response to a static or moving object, agility, postural adjustment, dominance--constitute a framework on which curriculum for young children can be built.
5. Movement tasks should be selected, arranged, varied, combined, and developed in a diversity of ways most appropriate for the purposes desired and the children to be served.
6. Physical education for young children should have an intradisciplinary approach.
7. Equipment should be selected and used purposefully.
8. Long-term planning and day-to-day planning are both essential.¹⁸⁸

Todd and Heffernan organized a list of developmental tasks in relation to a five year old's behavior. This may be noted in the following chart.¹⁸⁹

¹⁸⁷Clarice Dechert Wills and Lucile Lindberg, Kindergarten for Today's Children (Chicago, 1967), p. 268.

¹⁸⁸Caroline B. Sinclair, Movement of the Young Child Ages Two to Six (Columbus, Ohio, 1973), pp. 106-107.

¹⁸⁹Vivian Edmiston Todd and Helen Hefferson, The Years Before School (New York, 1964), p. 41.

Behavior Category	Developmental Tasks
1. Achieving an appropriate dependence-independence pattern.	1. Adjusting to less private attention; becoming independent physically (while remaining strongly dependent emotionally).
2. Achieving an appropriate giving-receiving pattern of affection.	2. Developing the ability to give affection. Learning to share affection.
3. Relating to changing social groups.	3. Beginning to develop the ability to interact with age-mates. Adjusting in the family to expectations it has for the child as a member of the social unit.
4. Developing a conscience.	4. Developing the ability to take directions and to be obedient in the presence of authority. Developing the ability to be obedient in the absence of authority where conscience substitutes for authority.
5. Learning one's psycho-sociobiological sex role.	5. Learning to identify with male and female adult roles.
6. Accepting and adjusting to a changing body.	6. Adjusting to expectations resulting from one's improving muscular abilities. Developing sex modesty.
7. Managing a changing body and learning new motor patterns.	7. Developing large-muscle control. Learning to coordinate large muscles and small muscles.
8. Learning to understand and control the physical world.	8. Meeting adult expectations for restrictive exploration and manipulation of an expanding environment.

Behavior Category	Developmental Tasks
9. Developing an appropriate symbol system and conceptual abilities.	9. Improving one's use of the symbol system. Enormous elaboration of the concept pattern.
10. Relating one's self to the cosmos.	10. Developing a genuine, though uncritical, notion about one's place in the cosmos.

Domains of Learning

Learning to move and learning through movement requires the integration of the three domains of learning. The three learning domains are referred to as psychomotor, cognitive, and affective development. Gallahue stated that

. . . psychomotor development is at the very heart of the movement education program which both cognitive and affective competencies can also be enhanced. Psychomotor development refers to learning to move with control and efficiency through space.¹⁹⁰

Cognitive development is enhanced with the acquirement of fundamental cognitive concepts which emphasize the why, what, how, and when of moving to learn. Gallahue stated that "movement can be effectively used as a tool for enhancing children's cognitive awareness of themselves and the world about them."¹⁹¹ The development of the affective domain is extremely important to the young child. Gallahue stated that

¹⁹⁰ David Gallahue, Motor Development and Movement Experiences for Young Children (3-7) (New York, 1976), p. 2.

¹⁹¹ Ibid., p. 10.

affective development involves dealing with children's increasing ability to act, interact, and react effectively with other people as well as with themselves.¹⁹²

The personal development of a child's social-emotional nature is vital to a balanced existence within an ever changing world.

There have been only a few imperically based research studies relating the realm of movement for a five year old in regard to the psychomotor, cognitive, and affective learning domains. The primary emphasis of early childhood physical education and growth and development specialists have primarily been directed toward some aspect of the psychomotor domain. For example, there have been 15 research studies conducted by Hicks, Hanson, McCaskill and Wellman, Goodenough and Smart, Espenschade and Eckert, Hill, Jones, Jersild and Bienstock, Buford, Goodenough and Brian, Clein and Stone, Cratty, Jones, Doudlah, and Painter, which dealt with some facet of movement in reference to the psychomotor domain. Only two research studies which were conducted by Hagman and Leighty dealt with movement in relation to the affective domain. Therefore, the few research studies which have been conducted have been specific in relating a movement capacity or capacities to a particular learning domain.

Summary

Although there have been early childhood research studies on movement factors, there have been no research studies that have attempted to identify major movement areas or to examine specialists' perceptions

¹⁹²Ibid., p. 14.

of the importance of movement areas in relation to planning a movement program for the five year old child. Only one research study has been conducted which dealt with the problem of relating growth and development characteristics to movement and movement patterns of young children. As previously stated in the review of literature, Sinclair conducted a study in 1971 to determine the progressive development in movement and movement patterns of children two to six years of age. She identified general characteristics which would be studied for appraisal of growth and development.¹⁹³

Among the educators in physical education and growth and development, there appears to be a lack of agreement in regard to the type of movement program desirable for the five year old child. Even though one is primarily dealing within the realm of movement, the review of literature indicated that the physical education specialists are not in total agreement as to the exact meaning of the individual movement areas. The growth and development specialists are aware of the importance of movement for the young child; however, they appear to be unfamiliar as to the application of individual movement areas in relation to planning a movement program which would contribute to a five year old child's growth and development. It appears that the specialists in physical education and growth and development have not combined efforts in their research in regard to the integration of the three learning domains for designing

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Caroline B. Sinclair, Movement and Movement Patterns of Early Childhood (Richmond, Virginia: Division of Educational Research and Statistics, State Department of Education, June, 1971).

a movement program for a five year old child. However, in order to develop a movement program one must remain within the context of the psychomotor, cognitive, and affective needs of the concerned age group. This is essential to establish the aims and objectives for the movement experiences which will be congruent to the growth characteristics and motor capacities of the child.¹⁹⁴

¹⁹⁴Helen Thomas Peterson, Kindergarten: The Key to Child Growth (New York, 1958), pp. 32-33.

CHAPTER III

METHODS AND PROCEDURES

This chapter presents information concerning the survey instrument used, reliability and validity, administration and results of the pilot study, procedures used to obtain the group of judges who participated as the panel of experts in the fields of early childhood physical education and growth and development, research questions, and statistical procedures which identified the treatment used to convert the raw data into meaningful terms.

The descriptive method of research was used for this study. Stephen Isaac and William Michael state that the purpose of descriptive research is "to describe systematically the facts and characteristics of a given population or area of interest, factually and accurately."¹

Survey Instrument

The development of a rating scale was designed in order to identify the movement areas applicable to the growth and development of the five year old child. A list of 21 movement areas was compiled from the review of literature. The movement areas which were included in the rating scale are the following: perceptual motor, balance, coordination,

¹Stephen Isaac and William B. Michael, Handbook in Research and Evaluation (San Diego, California, 1971), p. 18.

poise, body image, spatial awareness, rhythm, basic movements, color and form perception, communication skills, gross motor abilities, fine motor abilities, creative opportunities, manipulative skills, physical fitness, axial movements, posture, mimeticing, direct competition, indirect competition, and relaxation. A set of definitions was established to specify the exact meaning of each movement area. It was first necessary to determine the quality or degree of each movement area in order to signify which movement areas are applicable to the development of a movement curriculum. At a later time the movement areas could be ranked in order to designate the degree of eminence or excellence. Therefore, a rating scale was designed in order to rate the importance of each movement area in relation to planning a movement curriculum for the growth and development of the five year old child. The following explanation of the individual rating areas was provided to clarify the degree of emphasis for the identified movement area:

- 5 = EXTREMELY IMPORTANT: This area should receive primary emphasis in 90 per cent of the movement activities planned for the yearly program.
- 4 = VERY IMPORTANT: This area should be emphasized in the majority, 50 per cent of more, of the movement activities planned for the yearly program.
- 3 = SIGNIFICANTLY IMPORTANTLY: This area should receive approximately 33 per cent of the emphasis in the movement activities planned for the yearly program.
- 2 = IMPORTANT: This area should receive 25 per cent of the emphasis in the movement activities planned for the yearly program.

1 = LITTLE IMPORTANCE: This area should be afforded at some time in the movement activities planned for the yearly program, but does not necessitate re-emphasis.

0 = NO IMPORTANCE: This area does not contribute to the growth and development of a five year old child.

At the bottom of the rating scale a space was provided for any additions.

Additions: If there are any movement areas not listed which which should be considered within the yearly movement program for the five year old child, please add and rate. The author would appreciate a definition for any additional movement area.

A list of the additions which were not already included in the list of the 21 movement areas may be noted in Appendix B.

Reliability and Validity

In order to examine the reliability of the rating scale in relation to internal consistency, the Kuder-Richardson coefficient procedure will be used. Upon receiving the results from the survey instrument, the investigator statistically examined all the correct responses indicated by a five, extremely important, rating to each individual movement area to the incorrect responses indicated by a four, three, two, one, or zero rating. Construct validity was established using factor analysis in order to determine whether a priori theoretical dimension of the rating instrument emerges through statistical analysis of the data.

Pilot Study

A pilot study was conducted in order to provide any information which would improve the general construction of the survey instrument and/or any possible redesigning techniques for the main study. The survey instrument was sent to three elementary physical education specialists and three growth and development specialists. The pilot group of experts were locally selected in regard to their experience and knowledge in their respective fields. Physical education specialists and the growth and development specialists who participated in the pilot study may be noted in Appendix C and Appendix D, respectively. Additional ideas and approaches not foreseen prior to the pilot study resulted in the following changes upon the completed return of the survey instrument:

1. Introductory Letter:

- (a) Identifying the method by which the participating judges were selected as being experts within their respective fields.
- (b) Stating that the individual movement areas are not separate entities within themselves but need to be viewed as such in order to rate each one.
- (c) Informing each individual that his name would be listed in the study as being one of the participating, expertise judges who completed and returned the survey instrument.

2. Rating Scale

- (a) Redesigning the format of the survey scale by placing it on one page.

3. Background Information Sheet:

- (a) Restructured item four in regard to identifying the number of years of teaching experience.
- (b) Eliminated item five regarding the number of publications.

The original survey instrument which was used for the pilot study may be noted in Appendix E and the final instrument in Appendix F.

Obtaining Judges

Through the assistance of a group of experts in the fields of elementary physical education and growth and development, the researcher used a judging technique in order to rate the significance of each individual movement area in relation to planning a movement program for a five year old. Simon stated that

expert opinion are the judgments and estimates made by people who have spent much of their time working with a particular subject and who have gathered much general information that has been filtered through their minds and stored in their memories.²

The judges who were selected to participate in this study were individuals who have gained recognition as early childhood experts in the fields of physical education and growth and development. In addition to the three physical education specialists who participated in the pilot study, 50 physical education specialists were selected with the assistance of Dr. Marge Hanson, Elementary Education Coordinator of the Alliance Association of Health, Physical Education, and

²Julian L. Simon, Basic Research Methods in Social Science (New York, 1969), p. 274.

Recreation, Washington, D.C. With the assistance of Dr. Frances Ireland Stromberg, Chairman of the Family Relation and Child Development Department, Oklahoma State University, Stillwater, Oklahoma, 50 growth and development specialists were selected from the 1974 Directory for the Society for Research in Child Development to accompany the three growth and development specialists who participated in the pilot study. The information in regard to the judges who participated in the primary study may be noted in Appendix G and Appendix H.

Research Questions

Four research questions investigated in this study were:

1. What are the most important movement areas that both early childhood physical education and growth and development specialists feel should be included in a movement curriculum for a five year old child?
2. Do physical education and growth and development specialists differ in terms of their preference of the movement areas?
3. Controlling for sex, do the physical education and growth and development specialists differ in their preference of the movement areas?
4. Controlling for years of early childhood teaching experience, do the physical education and growth and development specialists differ in their preference of the movement areas?

Statistical Procedures

Data obtained from the judges was coded, key-punched, and analyzed using the Statistical Package for the Social Sciences (SPSS). SPSS was

initially designed by Nie and Bent in 1965 at Stanford University for the Political Science Department and the Institute for Political Studies (Nie, Bent, and Hall, 1970). The program consists of several sub-programs for the parametric and nonparametric analysis of data. The program is developed for use on an IBM 360/370 Computer and is written in FORTRAN II language.

The statistical procedures used to treat the data of the six specialists in the pilot study and the 82 specialists in the primary study are the following: First, a descriptive analysis indicating a frequency distribution for each movement area was used to determine the mean variation and range of each movement area and to test the general research question in this study. Second in order to test the secondary research question a varimax rotated factor matrix was developed using factor analysis with the high tren method of principal factor with iterations. From this analysis, underlining theoretical dimensions were identified and a direct testing of the secondary research question by a simple on-way analysis of variance was conducted. A one-way analysis of variance was extended to test the third research question which controls for sex in determining if the physical education and growth and development specialists differ in terms of their preference of the movement areas. In order to test the research question that dealt with teaching experience, an analysis of covariance was used with the covariance years of teaching experience adjusting for the variation between the underlying theoretical dimensions and the physical education and growth and development specialists. Finally, the measure of reliability which was used was

the Kuder-Richardson coefficient, and validity was examined based upon the A priori assumptions of the theoretical dimensions drawn from the factor analysis.

CHAPTER IV

RESULTS AND DISCUSSION OF RESULTS

The purpose of this study was to identify significant movement learning areas that physical education and growth and development specialists feel contribute to the growth and development of the five year old child. This chapter provides information on the physical education and growth and development specialists who were the respondent judges of this study, the reliability and validity of the survey instrument, and the statistical procedures employed for the four research questions.

Participating Judges

The survey instrument was sent to fifty physical education specialists; data was received from 42 of the specialists. The survey instrument was also sent to 50 growth and development specialists; data was received from 40 of the specialists. In addition to completing the survey instrument, 82 judges provided the following information: Sex, their institution, and the number of years of teaching experience. The researcher utilized the Carnegie Commission's booklet, A Classification of Institutions of Higher Education, to assist in the classification of the judges' institutions. Six physical education and growth and development specialists from the state of Oklahoma participated in the pilot study. These six judges and the 82 nationally selected

physical education and growth and development specialists were the participating judges in the study.

Reliability and Validity

In order to assess the reliability of the survey instrument the Kuder-Richardson reliability coefficient was used to determine whether the responses of the judges in regard to the movement areas were homogeneous. The reliability coefficient obtained was .73.

Bruning and Kintz interpreted a high reliability coefficient of .70 or higher to mean that the survey instrument was accurately measuring some characteristic of the people taking it. It would further mean that the survey instrument was producing similar patterns of responses from the judges.¹ Therefore, the obtained .73 reliability coefficient verified an accurate consistency in the precision of the survey instrument.

The researcher applied the Kuder-Richardson coefficient formula as stated in Bruning and Kintz' book, Computational Handbook of Statistics.² The statistical procedures which were followed to obtain the Kuder-Richardson coefficient may be noted in Appendix I.

Construct validity was established by using factor analysis to determine the theoretical dimensions which would emerge through statistical analysis of the data. Kerlinger stated that

¹James L. Bruning and B. L. Kintz, Computational Handbook of Statistics (Glenview, Illinois, 1977), p. 213.

²Ibid., pp. 211-213.

factor analysis is a method for reducing a large number of measures to a smaller number of measures (factors) by discovering which measures 'go together' (which measures measure the same thing) and the relations between these clusters of measures that go together.³

Six theoretical dimensions emerged through factor analysis.

The six factors, theoretical dimensions, which emerged were relatively independent from each other and demonstrated a relationship between the movement areas which clustered together in each factor. Therefore, the high internal consistency of the dimensions documented construct validity.

Statistical Procedures

The following information provides statistical procedures utilized to analyse the four research questions of this study.

A. Research Question: What are the most important movement areas that both early childhood physical education and growth and development specialists feel should be included in a movement program for a five year old child?

A descriptive analysis indicating a frequency distribution for each movement area was obtained. The movement areas which were rated as being of "High Importance" by the early childhood physical education and growth and development specialists were perceptual motor, balance, coordination, body image, spatial awareness, basic movements, communication skills, gross motor abilities, creative opportunities, and

³Fred N. Kerlinger, Foundations of Behavioral Research (New York, 1964), pp. 453-454.

manipulative skills. The movement areas which were rated as being of "Average Importance" were poise, rhythm, color and form perception, fine motor abilities, physical fitness, axial movements, posture, indirect competition, memeticing, and relaxation. The movement area which was rated as being of "Low Importance" was direct competition.

Specifically, the movement areas which the majority of the specialists identified as being "Extremely Important" were perceptual motor, body image, basic movements, gross motor abilities, and creative opportunities. This indicated that these movement areas should receive 90 per cent of the emphasis in the activities planned for the yearly program.

Table I indicates the frequency distribution for each movement area in relation to "High Importance," "Average Importance," and "Low Importance." Table II identifies the movement areas which are contained within the areas of "High Importance," "Average Importance," and "Low Importance" with the total percentage frequency for each movement area.

B. Research Question: Do the physical education and growth and development specialists differ in terms of their preference of the movement areas?

A varimax factor matrix was developed using factor analysis and the principle component method with iterations. From this analysis six theoretical dimensions emerged. Factor loading at the point four level or higher for the movement areas was identified to note the cluster of movement areas for each theoretical dimension. Factor one contained the movement areas of balance, rhythm, basic movements, gross motor abilities, creative opportunities, manipulative skills, and axial movements.

TABLE I
 FREQUENCY DISTRIBUTION FOR EACH MOVEMENT AREA

Movement Area	HIGH IMPORTANCE		AVERAGE IMPORTANCE		LOW IMPORTANCE	
	5 = Extremely Important	4 = Very Import- tant	3 = Signi- ficantly Important	2 = Important	1 = Little Import- tance	0 = No Import- tance
Perceptual Motor	65.9%	17.0%	9.1%	5.7%	0	2.3%
Balance	30.7%	26.1%	20.5%	21.6%	1.1%	0
Coordination	29.5%	29.5%	23.9%	12.5%	3.4%	1.1%
Poise	6.0%	8.0%	19.0%	23.0%	23.0%	9.0%
Body Image	54.5%	26.1%	9.1%	8.0%	2.3%	0
Spatial Awareness	35.2%	33.0%	20.5%	9.1%	2.3%	0
Rhythm	15.9%	30.7%	26.1%	22.7%	4.5%	0
Basic Movements	52.3%	14.8%	9.1%	19.3%	4.5%	0
Color & Form Perception	13.6%	20.5%	25.0%	22.7%	12.5%	5.7%
Communication Skills	40.9%	20.5%	14.8%	18.2%	3.4%	2.3%
Gross Motor Abilities	53.4%	30.7%	12.5%	3.4%	0	0
Fine Motor Abilities	14.8%	25.0%	27.3%	28.4%	3.4%	1.1%
Creative Opportunities	53.4%	21.6%	11.4%	10.2%	2.3%	1.1%
Manipulative Skills	23.9%	40.9%	21.6%	12.5%	1.1%	0
Physical Fitness	11.4%	23.9%	21.6%	25.0%	15.9%	2.3%
Axial Movements	8.0%	33.0%	15.9%	29.5%	12.5%	1.1%
Posture	8.0%	13.6%	18.2%	34.1%	21.6%	4.5%
Mimeticing	4.5%	8.0%	19.3%	29.5%	34.1%	4.5%
Direct Competition	0	1.1%	3.4%	5.7%	29.3%	62.5%
Indirect Competition	10.2%	9.1%	14.8%	34.1%	26.1%	5.7%
Relaxation	15.9%	13.6%	21.6%	21.6%	22.7%	4.5%

TABLE II

TOTAL FREQUENCY DISTRIBUTIONS OF THE MOVEMENT AREAS RATED
AS "HIGH IMPORTANCE," "AVERAGE IMPORTANCE,"
OR "LOW IMPORTANCE"

Movement Area	HIGH IMPORTANCE		AVERAGE IMPORTANCE		LOW IMPORTANCE	
	5 = Extremely Important	4 = Very Important	3 = Significantly Important	2 = Important	1 = Little Importance	0 = No Importance
Perceptual Motor	82.9%					
Balance	56.8%					
Coordination	59.0%					
Body Image	80.6%					
Spatial Awareness	68.5%					
Rhythm				48.8%		
Basic Movements	67.1%					
Color & Form Perception				47.7%		
Communication Skills	61.4%					
Gross Motor Abilities	84.1%					
Fine Motor Abilities				55.7%		
Creative Opportunities	75.0%					
Manipulative Skills	64.7%					
Physical Fitness				46.6%		
Axial Movements				45.4%		
Posture				52.3%		
Mimeticing				49.8%		
Direct Competition						91.8%
Indirect Competition				48.9%		
Relaxation				43.2%		

Factor two contained the movement areas of poise, physical fitness, posture, and relaxation. Factor three contained the movement areas of perceptual motor, coordination, color and form perception, communication skills, and fine motor abilities. Factor four contained the movement areas of direct competition and indirect competition. Factor five contained the movement areas of body image and spatial awareness. Factor six contained the movement area mimeticizing.

The researcher identified each factor with the following labels: factor one, "Body Movement;" factor two, "Muscle Control;" factor three, "Perceptual Movement;" factor four, "Competition," factor five, "Body Awareness;" and factor six, "Mimeticizing."

With the information provided from the factor analysis, the researcher conducted a one-way analysis of variance of the six theoretical constructs to determine if physical education and growth and development specialists differed in terms of their preference of the movement areas. Employing the .05 level of significance, factor one, "Body Movement;" factor two, "Muscle Control;" and factor three, "Perceptual Movement;" were significantly different at .005, 0.16, and .049, respectively. Factor four, "Competition;" factor five, "Body Awareness;" and factor six, "Mimeticizing;" were not significantly different at .177, .183, and .540, respectively. Therefore, the group of specialists do not agree to the importance of the movement factors "Body Movement," "Muscle Control," and "Perceptual Movement" and agreed in their preference of the movement factors "Competition," "Body Awareness," and "Mimeticizing."

The researcher suggests that the three movement factors ("Body Movement," "Muscle Control," and "Perceptual Movement") which the

specialists differed in terms of their preference was due to the difference of professional opinion as to the exact meaning and application of this bulk of movement areas. As was stated in the summary section of Chapter II, the physical education specialists are not in total agreement as to the exact meaning of the movement areas, and the growth and development specialists appear to be unfamiliar as to the application of the individual movement areas in relation to planning a movement program for the five year old child.

Table III represents the factor loading for the movement areas on the six theoretical constructs. Tables IV through IX identify a one-way analysis of variance for the individual factors.

C. Research Question: Controlling for sex, do the physical education and growth and development specialists differ in their preference of the movement area?

When the responses of the female and male specialists were examined, Controlling for Sex, only one movement factor, "Body Movement," was considered significantly different by the female specialists at the .05 level of significance. The chart below summarized the results:

<u>Movement Factor</u>	<u>Females</u>	<u>Males</u>
Body Movement	0.010	0.068
Muscle Control	0.063	0.102
Perceptual Movement	0.420	0.157
Competition	0.139	0.605
Body Awareness	0.085	0.237
Mimeticing	0.881	0.548

TABLE III

FACTOR LOADING FOR MOVEMENT AREA ITEMS ON SIX THEORETICAL CONSTRUCTS

Movement Area	Factor I (Body Movement)	Factor II (Muscle Control)	Factor III (Perceptual Movement)	Factor IV (Compe- tition)	Factor V (Body Awareness)	Factor VI (Mime- ticing)
Perceptual Motor			.55535			
Balance	.43715					
Coordination			.50073			
Poise		.54766				
Body Image					.64897	
Spatial Awareness					.52710	
Rhythm	.65098					
Basic Movements	.87175					
Color & Form Perception			.51428			
Communication Skills			.54752			
Gross Motor Abilities	.66931					
Fine Motor Abilities			.57025			
Creative Opportunities	.43187					
Manipulative Skills	.45777					
Physical Fitness		.69730				
Axial Movements	.58452					

TABLE III (Continued)

Movement Area	Factor I (Body Movement)	Factor II (Muscle Control)	Factor III (Perceptual Movement)	Factor IV (Compe- tition)	Factor V (Body Awareness)	Factor VI (Mime- ticing)
Posture		.57528				
Mimeticing						.81666
Direct Competition				.39952		
Indirect Competition				.97562		
Relaxation		.56143				
Eigenvalue > 1.0						

TABLE IV
 ONE-WAY ANALYSIS VARIANCE FOR FACTOR ONE (BODY MOVEMENT)
 BY PHYSICAL EDUCATION AND GROWTH AND
 DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F.Prob.
Between Groups	1	226.4062	226.4062	8.464	*0.005
Within Groups	86	2300.3242	26.7480		
Total	87	2526.7305			

*Significant at $p \geq .05$

TABLE V
 ONE-WAY ANALYSIS VARIANCE FOR FACTOR TWO (MUSCLE CONTROL)
 BY PHYSICAL EDUCATION AND GROWTH AND
 DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	92.0898	92.0898	5.937	*0.016
Within Groups	86	1333.9102	15.5106		
Total	87	1426.0000			

*Significant at $p \geq .05$

TABLE VI

ONE-WAY ANALYSIS VARIANCE FOR FACTOR THREE (PERCEPTUAL
MOVEMENT) BY PHYSICAL EDUCATION AND GROWTH
AND DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	69.9453	69.9453	3.901	*0.049
Within Groups	86	1541.9727	17.9299		
Total	87	1611.9180			

*Significant at $p \leq .05$

TABLE VII

ONE-WAY ANALYSIS VARIANCE FOR FACTOR FOUR (COMPETITION)
BY PHYSICAL EDUCATION AND GROWTH AND
DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	6.3274	6.3274	1.826	0.177
Within Groups	86	297.9910	3.4650		
Total	87	304.3184			

TABLE VIII

ONE-WAY ANALYSIS VARIANCE FOR FACTOR FIVE (BODY
AWARENESS) BY PHYSICAL EDUCATION AND GROWTH
AND DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	5.8828	5.8828	1.771	0.183
Within Groups	86	285.7422	3.3226		
Total	87	291.6250			

TABLE IX

ONE-WAY ANALYSIS VARIANCE FOR FACTOR SIX (MIMETICING)
BY PHYSICAL EDUCATION AND GROWTH AND
DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	0.5752	0.5752	0.392	0.540
Within Groups	86	126.1409	1.4668		
Total	87	126.7161			

The researcher questions why "Muscle Control" and "Perceptual Movement" were not significantly different when controlling for sex when these two movement factors were significantly different in relation to the total group of specialists. It should first be noted that there were 60 participating female specialists and 28 participating male specialists. With over double the amount of female specialists the results may have possibly been skewed. However, more importantly was the mean difference between the females and the males. For "Muscle Control" the females were fairly close to the total group of specialists in reference to the F probability. The males tended to differ more with a 2.6 mean difference. In "Perceptual Movement" the mean difference for the females was .9, with a 2.6 mean difference for the males, and a 1.4 mean difference for the total group of specialists. Possibly the mean value might change for the males if there had been more male specialists. This might explain why when the females and males were separated, "Muscle Control" and "Perceptual Movement" were not significant. The researcher speculates that the more in a group the closer the two means might become.

Tables X - XV represent a one-way analysis of factors one to six for female physical education and growth and development specialists. Tables XVI - XXI represent a one-way analysis of variance for factors one to six for male physical education and growth and development specialists.

TABLE X

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR ONE (BODY MOVEMENT)
 BY FEMALE PHYSICAL EDUCATION AND GROWTH AND
 DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F. Prob.
Between Groups	1	181.7422	181.7422	7.088	*0.010
Within Groups	58	1487.2617	25.6426		
Total	59	1669.0039			

*Significant at $p \geq .05$

TABLE XI

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR TWO (MUSCLE
 CONTROL) BY FEMALE PHYSICAL EDUCATION AND
 GROWTH AND DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	57.0273	57.0273	3.500	0.063
Within Groups	58	944.9102	16.2915		
Total	59	1001.9375			

TABLE XII

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR THREE (PERCEPTUAL
MOVEMENT) BY FEMALE PHYSICAL EDUCATION AND
GROWTH AND DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	10.6016	10.6016	0.675	0.420
Within Groups	58	911.0586	15.7079		
Total	59	921.6602			

TABLE XIII

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR FOUR (COMPETITION)
BY FEMALE PHYSICAL EDUCATION AND GROWTH AND
DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	7.3538	7.3538	2.203	0.139
Within Groups	58	193.6299	3.3384		
Total	59	200.9836			

TABLE XIV

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR FIVE (BODY
AWARENESS) BY FEMALE PHYSICAL EDUCATION AND
GROWTH AND DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F. Prob.
Between Groups	1	7.7070	7.7070	3.000	0.085
Within Groups	58	149.0273	2.5694		
Total	59	156.7344			

TABLE XV

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR SIX (MIMETICING)
BY FEMALE PHYSICAL EDUCATION AND GROWTH AND
DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F. Prob.
Between Groups	1	0.0168	0.0168	0.011	0.881
Within Groups	58	90.3167	1.5572		
Total	59	90.3335			

TABLE XVI

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR ONE (BODY MOVEMENT)
 BY MALE PHYSICAL EDUCATION AND GROWTH AND
 DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	96.1094	96.1094	3.536	0.068
Within Groups	26	706.6133	27.1774		
Total	27	802.7227			

TABLE XVII

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR TWO (MUSCLE
 CONTROL) BY MALE PHYSICAL EDUCATION AND
 GROWTH AND DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	41.2571	41.2571	2.804	0.102
Within Groups	26	382.6003	14.7154		
Total	27	423.8574			

TABLE XVIII

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR THREE (PERCEPTUAL
MOVEMENT) BY MALE PHYSICAL EDUCATION AND
GROWTH AND DEVELOPMENT SPECIALISTA

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	39.1094	39.1094	2.090	0.157
Within Groups	26	486.6055	18.7156		
Total	27	525.7148			

TABLE XIX

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR FOUR (COMPETITION)
BY MALE PHYSICAL EDUCATION AND GROWTH AND
DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	1.0864	1.0864	0.283	0.605
Within Groups	26	99.8779	3.8415		
Total	27	100.9644			

TABLE XX

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR FIVE (BODY
AWARENESS) BY MALE PHYSICAL EDUCATION AND
GROWTH AND DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	5.2073	5.2073	1.457	0.237
Within Groups	26	92.9001	3.5731		
Total	27	98.1074			

TABLE XXI

ONE-WAY ANALYSIS OF VARIANCE OF FACTOR SIX (MIMETICING)
BY MALE PHYSICAL EDUCATION AND GROWTH AND
DEVELOPMENT SPECIALISTS

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	0.4950	0.4960	0.384	0.548
Within Groups	26	33.6111	1.2927		
Total	27	34.1072			

D. Research Question: Controlling for years of early childhood teaching experience, do the physical education and growth and development specialists differ in their preference of the movement areas?

An analysis of co-variance was used with the covariance years of teaching experience adjusted for the variation between the underlying theoretical dimensions and the physical education and growth and development specialists. Employing the .05 level of significance, "Body Movement," "Muscle Control," "Perceptual Movement," and "Body Awareness" were significantly different at .008, .016, .047, and .039, respectively, in relation to preschool teaching experience. In relation to elementary teaching experience, "Body Movement" and "Muscle Control" were significantly different at .003 and .027, respectively. The chart below summarized the results:

<u>Movement Factor</u>	<u>Preschool Teaching Experience</u>	<u>Elementary Teaching Experience</u>
Body Movement	.008	.003
Muscle Control	.016	.027
Perceptual Movement	.047	.102
Competition	.068	.999
Body Awareness	.039	.202
Mimeticing	.999	.999

In regard to the results of the movement factors for the total group of specialists compared to controlling for preschool teaching experience, "Body Awareness" is an additional movement factor which is now considered significantly different. It appears that because of the number of years of teaching experience at the preschool level, the specialists tend to disagree more in terms of the importance of

the movement factor "Body Awareness." Although "Body Movement," "Muscle Control," and "Perceptual Movement" were significantly different in relation to the total group of specialists, when elementary teaching experience was controlled "Perceptual Movement" was not significantly different. The only explanation that the researcher can surmise is that elementary teaching experience deals with kindergarten to fifth grade. There was no way to know if the specialists had more teaching experience in the primary grades (K-2) versus the upper grades (3-5). It is feasible that "Perceptual Movement" would be stressed a great deal more in the primary grades rather than in the upper grades.

Tables XXII through XXVII identify the covariate of teaching experience at the preschool level for factors one to six. Tables XXVIII through XXXIII identify the covariate of teaching experience at the elementary level for factors one to six.

TABLE XXII

COVARIATE OF TEACHING EXPERIENCE AT THE PRESCHOOL LEVEL
FOR FACTOR ONE (BODY MOVEMENT) BY PHYSICAL EDUCATION
AND GROWTH AND DEVELOPMENT SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	3.772	1	3.772	0.142	0.999
Preschool	3.772	1	3.772	0.142	0.999
Main Effects	265.187	1	265.187	9.984	0.002
PE & GD Specialists	265.187	1	265.187	9.984	0.002
Explained	268.959	2	134.479	5.063	*0.008
Residual	2257.747	85	26.562		
Total	2526.706	87	29.043		

*Significant at the $p \geq .05$

TABLE XXIII

COVARIATE OF TEACHING EXPERIENCE AT THE PRESCHOOL LEVEL
FOR FACTOR TWO (MUSCLE CONTROL) BY PHYSICAL EDUCATION
AND GROWTH AND DEVELOPMENT SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	77.972	1	77.972	5.123	0.025
Preschool	77.972	1	77.972	5.123	0.025
Main Effects	54.419	1	54.419	3.576	0.059
PE & GD Specialists	54.419	1	54.419	3.576	0.059
Explained	132.391	2	66.196	4.350	*0.016
Residual	1293.599	85	15.219		
Total	1425.990	87	16.391		

*Significant at the $p \geq .05$

TABLE XXIV

COVARIATE OF TEACHING EXPERIENCE AT THE PRESCHOOL LEVEL
FOR FACTOR THREE (PERCEPTUAL MOVEMENT) BY PHYSICAL
EDUCATION AND GROWTH AND DEVELOPMENT SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	73.307	1	73.307	4.153	0.042
Preschool	73.307	1	73.307	4.153	0.042
Main Effects	38.066	1	38.066	2.156	0.142
PE & GD Specialists	38.066	1	38.066	2.156	0.142
Explained	111.373	2	55.686	3.154	*0.047
Residual	1500.516	85	17.653		
Total	1611.888	87	18.527		

*Significant at the $p \geq .05$

TABLE XXV

COVARIATE OF TEACHING EXPERIENCE AT THE PRESCHOOL LEVEL
FOR FACTOR FOUR (COMPETITION) BY PHYSICAL EDUCATION
AND GROWTH AND DEVELOPMENT SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	6.858	1	6.858	2.039	0.153
Preschool	6.858	1	6.858	2.039	0.153
Main Effects	11.615	1	11.615	3.454	0.063
PE & GD Specialists	11.615	1	11.615	3.454	0.063
Explained	18.473	2	9.237	2.747	0.068
Residual	285.844	85	3.363		
Total	304.317	87	3.498		

TABLE XXVI

COVARIATE OF TEACHING EXPERIENCE AT THE PRESCHOOL LEVEL
FOR FACTOR FIVE (BODY AWARENESS) BY PHYSICAL
EDUCATION AND GROWTH AND DEVELOPMENT
SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	9.418	1	9.418	2.961	0.085
Preschool	9.418	1	9.418	2.961	0.085
Main Effects	11.895	1	11.895	3.740	0.054
PE & GD Specialists	11.895	1	11.895	3.740	0.054
Explained	21.313	2	10.656	3.351	*0.039
Residual	270.310	85	3.180		
Total	291.623	87	3.352		

*Significant at the $p \geq .05$

TABLE XXVII

COVARIATE OF TEACHING EXPERIENCE AT THE PRESCHOOL LEVEL
FOR FACTOR SIX (MIMETICING) BY PHYSICAL EDUCATION
AND GROWTH AND DEVELOPMENT SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	0.228	1	0.228	0.154	0.999
Preschool	0.228	1	0.228	0.154	0.999
Main Effects	0.873	1	0.873	0.591	0.999
PE & GD Specialists	0.873	1	0.873	0.591	0.999
Explained	1.100	2	0.550	0.372	0.999
Residual	125.615	85	1.478		
Total	126.716	87	1.457		

TABLE XXVIII

COVARIATE OF TEACHING EXPERIENCE AT THE ELEMENTARY LEVEL
FOR FACTOR ONE (BODY MOVEMENT) BY PHYSICAL EDUCATION
AND GROWTH AND DEVELOPMENT SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	3.266	1	3.266	0.127	0.999
Elementary	3.266	1	3.266	0.127	0.999
Main Effects	329.395	1	329.395	12.761	0.001
PE & GD Specialists	329.395	1	329.395	12.761	0.001
Explained	332.661	2	166.331	6.444	*0.003
Residual	2194.044	85	25.812		
Total	2526.706	87	29.043		

*Significant at the $p \geq .05$

TABLE XXIX

COVARIATE OF TEACHING EXPERIENCE AT THE ELEMENTARY LEVEL
FOR FACTOR TWO (MUSCLE CONTROL) BY PHYSICAL EDUCATION
AND GROWTH AND DEVELOPMENT SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	78.813	1	78.813	5.113	0.025
Elementary	78.813	1	78.813	5.113	0.025
Main Effects	36.936	1	36.936	2.396	0.121
PE & GD Specialists	36.936	1	36.939	2.396	0.121
Explained	115.749	2	57.875	3.755	*0.027
Residual	1310.241	85	15.415		
Total	1425.990	87	16.391		

*Significant at the $p \geq .05$

TABLE XXX

COVARIATE OF TEACHING EXPERIENCE AT THE ELEMENTARY LEVEL
FOR FACTOR THREE (PERCEPTUAL MOVEMENT) BY PHYSICAL
EDUCATION AND GROWTH AND DEVELOPMENT SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	52.765	1	52.765	2.935	0.086
Elementary	52.765	1	52.765	2.935	0.086
Main Effects	30.862	1	30.862	1.717	0.191
PE & GD Specialists	20.862	1	30.862	1.717	0.191
Explained	83.628	2	41.814	2.326	0.102
Residual	1528.260	85	17.980		
Total	1611.888	87	18.527		

TABLE XXXI

COVARIATE OF TEACHING EXPERIENCE AT THE ELEMENTARY LEVEL
FOR FACTOR FOUR (COMPETITION) BY PHYSICAL EDUCATION
AND GROWTH AND DEVELOPMENT SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	0.560	1	0.560	0.160	0.999
Elementary	0.560	1	0.560	0.160	0.999
Main Effects	6.044	1	6.044	1.726	0.189
PE & GD Specialists	6.044	1	6.044	1.726	0.189
Explained	6.604	2	3.302	0.943	0.999
Residual	297.713	85	3.503		
Total	304.317	87	3.498		

TABLE XXXII

COVARIATE OF TEACHING EXPERIENCE AT THE ELEMENTARY LEVEL
FOR FACTOR FIVE (BODY AWARENESS) BY PHYSICAL
EDUCATION AND GROWTH AND DEVELOPMENT
SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	0.582	1	0.582	0.176	0.999
Elementary	0.582	1	0.582	0.176	0.999
Main Effects	10.140	1	10.140	3.068	0.080
PE & GD Specialists	10.140	1	10.140	3.068	0.80
Explained	10.722	2	5.361	1.622	0.202
Residual	280.901	85	3.305		
Total	291.623	87	3.352		

TABLE XXXIII

COVARIATE OF TEACHING EXPERIENCE AT THE ELEMENTARY LEVEL
 FOR FACTOR SIX (MIMETICING) BY PHYSICAL EDUCATION
 AND GROWTH AND DEVELOPMENT SPECIALISTS

Source of Variation	Sum of Squares	D.F.	Mean Squares	F	Significance of F
Covariates	1.370	1	1.370	0.929	0.999
Elementary	1.370	1	1.370	0.929	0.999
Main Effects	0.050	1	0.050	0.034	0.000
PE & GD Specialists	0.050	1	0.050	0.034	0.999
Explained	1.420	2	0.710	0.482	0.999
Residual	125.296	85	1.474		
Total	126.716	87	1.457		

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The primary purpose of this study was to identify significant movement learning areas that physical education and growth and development specialists feel contribute to the growth and development of the five year old child. The secondary purpose was to determine if the physical education and growth and development specialists differed in their preference of the movement areas. In relation to the primary and secondary purposes of this study, the four research questions investigated in this study were the following:

1. What are the most important movement areas that both early childhood physical education and growth and development specialists feel should be included in a movement curriculum for a five year old child?
2. Do the physical education and growth and development specialists differ in terms of their preference of the movement areas?
3. Controlling for sex, do the physical education and growth and development specialists differ in their preference of the movement areas?
4. Controlling for years of early childhood teaching experience, do the physical education and growth and development specialists differ in their preference of the movement areas?

The general findings and conclusions of this study are the following:

1. The most important movement areas that both early childhood physical education and growth and development specialists felt should be included in a movement curriculum for a five year old were perceptual motor, balance, coordination, body image, spatial awareness, basic movements, communication skills, gross motor abilities, creative opportunities, and manipulative skills. From this group of movement areas perceptual motor, body image, basic movements, gross motor abilities, and creative opportunities were identified by the majority of the physical education and growth and development specialists as movement areas which should receive 90 per cent of the emphasis in the movement activities planned for the yearly program. The movement areas which were considered to be of "average importance" were rhythm, color and form perception, fine motor abilities, physical fitness, axial movements, posture, mimeticing, indirect competition, and relaxation. The movement area which was considered to be of "low importance" was direct competition.

2. Six theoretical dimensions identified are "Body Movement," "Muscle Control," "Perceptual Movement," "Competition," "Body Awareness," and "Mimeticing" emerged from a factor analysis. The physical education and growth and development specialists differed in terms of their preference of the movement factors "Body Movement," "Muscle Control," and "Perceptual Movement." The movement areas included in "Body Movement" were balance, rhythm, basic movements, gross motor abilities, creative opportunities, manipulative skills, and axial movements. The movement areas included in "Muscle Control" were poise, physical fitness,

posture, and relaxation. The movement areas included in "Perceptual Movement" were perceptual motor, coordination, color and form perception, communication skills, and fine motor abilities.

3. Controlling for sex, there was a significant difference between the males and females in their ratings on the movement factor, "Body Movement." The females considered the movement factor, "Body Movement," as being significantly different from the other movement factors. Both the females and males indicated the movement factors of "Muscle Control," "Perceptual Movement," "Competition," "Body Awareness," and "Mimeticing" as not being significantly different.

4. Controlling for years of early childhood teaching experience, the specialists who had teaching experience at the preschool level differed in their preference of the movement areas by indicating that the movement factors "Body Movement," "Muscle Control," "Perceptual Movement," and "Body Awareness" were significantly different from the other movement factors. Based on elementary teaching experience the movement factors "Body Movement," and "Muscle Control" were considered significantly different from the other movement factors by the specialists.

In conclusion, this study indicated that the specialists felt that the significant movement areas which contribute to the growth and development of the five year old were perceptual motor, balance, coordination, body image, spatial awareness, basic movements, communication skills, gross motor abilities, creative opportunities, manipulative skills, poise, rhythm, color and form perception, fine motor abilities physical fitness, axial movements, posture, indirect competition, mimeticing, and relaxation. However, the physical education specialists

differed from the growth and development specialists in their preference of the movement areas, balance, rhythm, basic movements, gross motor abilities, creative opportunities, manipulative skills, axial movements, poise, physical fitness, posture, relaxation, perceptual motor, coordination, color and form perception, communication skills, and fine motor abilities.

Recommendations for Future Study

The investigator's recommendations for future studies are:

1. Design a survey instrument which would include the significant movement areas applicable to the growth and development of a five year old child, and have a group of physical education and growth and development specialists rank the progressive development of these movement areas in relation to planning a movement program.

2. Determine the content areas for a year's movement program which would include the various movement areas.

3. Define the general objectives for each content area and specific objectives which would relate to each movement area. Then, a logical and progressive sequence would facilitate continued curriculum development for a movement program for a five year old child.

4. Prepare a suggested list of movement activities in order to guide the students in accomplishing the objectives of the movement program.

5. Develop a curriculum guide that would facilitate the implementation of a movement program for a five year old child.

- (a) Develop a set of tests which could be used to evaluate the various content areas and the overall movement program

for the five year old child.

- (b) Implement a movement curriculum for the growth and development of a five year old child and evaluate the progressive development of the students throughout the year in relation to the established objectives.

6. Compare the growth and development of five year old children who have participated in a year's movement program and five year old children who have not participated in a year's movement program.

7. Investigate the different types of learning principles and conduct a comparative study to determine how a five year old child may best accomplish learning how to move.

BIBLIOGRAPHY

- Anderson, Marian H., Margaret E. Elliot, and La Berge Jeanne. Play With Purpose. New York and London: Harper and Row, Publishers, 1966.
- Andrews, Gladys. Creative Rhythmic Movement for Children. Englewood Cliffs: Prentice Hall, Inc., 1954.
- Arnauld, Sara H. "Some Functions of Play in the Educative Process." Childhood Education. 51:2, 1974.
- Arnheim, Daniel D., and William A. Sinclair. The Clumsy Child. St. Louis: The C. V. Mosby Company, 1975.
- Bayley, Nancy. "The Emotions of Children: Their Development and Modification." Childhood Education, 21:3 (1944), pp. 156-159.
- Beauchamp, Mary. "How Should We Look at Levels?" Childhood Education, 32 (Dec. 1955), pp. 164-167.
- Biggs, Morris L. "Theories of Learning." NEA Journal, 55:3 (1966).
- Block, Susan Dimond. Me and I'm Great: Physical Education for Children Three Through Eight. Minneapolis: Burgess Publishing Company, 1977.
- Braley, William T. "The Dayton Program for Developing Sensory and Motor Skills in Three, Four, and Five Year Old Children." Perceptual-Motor Foundations: A Multidisciplinary Concern. AAHPER, pp. 109-120.
- Breckenridge, Marian E., and Margaret Nesbitt Murphy. Growth Development of the Young Child. Philadelphia: W. B. Saunders Company, 8th ed., 1969.
- Britton, Edward C., and J. Merritt Winans. Growing From Infancy to Adulthood. New York: Appleton-Century-Crofts, Inc., 1958.
- Bruning, James L., and B. L. Kintz. Computational Handbook of Statistics. Glenview, Illinois: Scott, Foresman, and Company, 2nd ed., 1977.
- Buford, Jeanette Johnson. Experimental Study of Motor Abilities of Children in the Primary Grades. Baltimore: John Hopkins Press, 1917.

- Butler, Grace K. Pratt. The Three-, Four-, and Five-Year-Old In a School Setting. Columbus, Ohio: Charles E. Merrill Publishing Co., 1975.
- Cantor, Nathaniel. Dynamics of Learning. New York: Agathon Press Inc., 1972.
- Cantor, Nathaniel. "Function and Focus in the Learning Process." Journal of Educational Research. XLV:2 (Oct. 1951), p. 225.
- Carnegie Commission. A Classification of Institutions of Higher Education, United States of America. New York: Carnegie Foundation for the Advancement of Teaching, 1973.
- Cay, Donald F. Curriculum: Design for Learning. New York: Bobbs-Merrill Company, Inc., 1966.
- Cherry, Clare. Creative Movement for the Developing Child. Belmont, California: Fearon Publishers, Inc., 1971.
- Clein, Marvin L., and William J. Stone. "Physical Education and the Classification of Educational Objectives: Psychomotor Domain." The Physical Educator, 27:1 (1970), pp. 34-35.
- Combs, Arthur W. "The Human Side of Learning." Humanistic Education Sourcebook. Donald A. Read, and Sidney B. Simon, eds. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1975, p. 123.
- Corbin, Charles B. A Textbook of Motor Development. Dubuque, Iowa: Wm. C. Brown Company Publishers, 1973.
- Corbin, Charles B. Becoming Physically Educated in the Elementary School. Philadelphia: Lea & Febiger, 1971.
- Cratty, Bryant J. Movement, Perception and Thought. Palo Alto, California: Peek Publications.
- Cratty, Bryant J. Perceptual-Motor Behavior and Educational Process. Springfield, Ill.: Charles C. Thomas Publisher, 1969.
- Cratty, Bryant J. Perceptual and Motor Development in Infants and Children. London: The Macmillan Company, Collier Macmillan Ltd., 1970.
- Crow, Lester D., and Alice Crow. Child Development and Adjustment. New York: Macmillan Company, 1965.
- Dauer, Victor P. Essential Movement Experiences for Preschool and Primary Children. Minneapolis, Minn.: Burgess Publishing Company, 1972.

- Dewey, John. The Child and the Curriculum. The University of Chicago Press, 1959.
- Doudlah, Anna May. "The Perceptual Motor Performance of Kindergarten Children with Low Scores on Selected Physical Tasks." (Unpub. doctoral dissertation, University of Wisconsin, 1967.)
- Dowley, Edith M., and Rose M. Bromwich. "The Role of Curriculum in Early Childhood Development Programs." Planning for Action. Dennis N. McFadden, ed. Washington, D.C.: National Association for the Education of Young Children, 1972, pp. 23, 46, 47.
- Dowley, Edith M., and Rose M. Bromwich. Educational Services for Young Children. Washington, D.C.: Educational Policies Commission, N.E.A., Dec. 1945.
- Espenchade, A. E., and H. W. Eckert. Motor Development. Columbus, Ohio: Charles E. Merrill Books, Inc., 1967.
- Evans, Mildred May Bailey. "The Effects of a Physical Education Program on Auditory Discrimination Ability, Verbal and Nonverbal, of Kindergarten Children." (Unpub. doctoral dissertation, Michigan State University, 1971.)
- Fait, Hollis F. Physical Education for the Elementary School Child. Philadelphia: W. B. Saunders Company, 3rd ed., 1976.
- Fales, Evaline. "A Rating Scale of the Vigorousness of Play Activities of Pre-school Children." Child Development, 8 (1937), pp. 15-46.
- Farwell, L. "Reactions of Kindergarten, First, and Second Grade Children to Constructive Play Material." Genetic Psychology Monographs, 30 (1930), pp. 431-554.
- Flinchum, Betty M. Motor Development in Early Childhood. St. Louis: The C. V. Mosby Company, 1975.
- Flinchum, Betty M., and Margie R. Hanson. "Who Says the Young Child Can't?" JOPHER (June, 1972), pp. 4, 16.
- Fort, Jane G., Jean C. Watts, and Gerald S. Lesser. "Cultural Background and Learning in Young Children." Phi Delta Kappan, L:7 (March, 1969), pp. 386-388.
- Fowler, W. "Cognitive Learning in Infancy and Early Childhood." Psychological Bulletin, 59 (1962), pp. 116-152.
- Fox, Robert S., Ronald Lippitt, and Eva Schindler Rainman. Toward a Humane Society: Images of Potentiality. Fairfax, Virginia: NTL Learning Resources Corporation, Inc., 1973.
- Fostig, Marianne. Movement Education: Theory and Practice. Chicago: Follett Education Corporation, 1970.

- Fraiberg, Selma H. The Magic Years. New York: Charles Scribner's Sons, 1959.
- Gallahue, David. "Directed Movement Activities for Preschool Children." The Physical Educator, 30:2 (May, 1973), p. 90.
- Gallahue, David. Motor Development and Movement Experiences for Young Children (3-7). New York: John Wiley and Sons, Inc., 1976.
- Garrison, Karl C. Growth and Development. New York: Longmans, Green and Co., 2nd ed., 1959.
- Gerhardt, Lydia A. Moving and Knowing. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1973.
- Gesell, Arnold, and Frances L. Ilg. The Child From Five To Ten. New York: Harper and Brothers Publishers, 1946.
- Gesell, Arnold, and Frances L. Ilg. Infant and Child in the Culture of Today. New York: Harper and Brothers Publishers, 1943.
- Gesell, Arnold. The First Five Years of Life. New York: Harper and Brothers Publishers, 1940.
- Gesell, Arnold. The Mental Growth of the Pre-school Child. New York: The Macmillan Company, 1925.
- Godfrey, Barbara B., and Newell C. Kephart. Movement Patterns and Motor Education. New York: Appleton-Century-Crofts, Division of Meredith Corporation, 1969.
- Goodenough, Florence L., and Clara R. Brian. "Certain Factors Underlying the Acquisition of Motor Skill by Pre-school Children." Journal of Experimental Psychology, 12 (1929), pp. 127-155.
- Goodenough, Florence L., and Russell C. Smart. "Inter-relationships of Motor Abilities in Young Children." Child Development, 6 (1935), pp. 141-153.
- Goodlad, John I. et al. Toward a Mankind School: An Adventure in Humanistic Education. New York: McGraw Hill Co., 1974.
- Gordon, Larry Dean. Development and Evaluation of Behavioral Objectives for Physical Education Grades Kindergarten Through Second." (Unpub. doctoral dissertation, University of Missouri, 1971.)
- Gordon, Larry Dean, Margaret M. Thompson, and J. W. Alspaugh. "The Relative Importance of Various Physical Education Objectives for Grades K-2." Research Quarterly, 44:2 (1973), pp. 192-196.
- Gray, John Stanley. Psychological Foundations of Education. New York: American Book Company, 1935.

- Hagman, E. P. "The Companionship of Preschool Children." Studies in Child Welfare, 7:4 (1933).
- Halverson, Lolas E. "A Real Look at the Young Child." JOPHER, 42:5 (1971), p. 31.
- Halverson, Lolas E. "Development of Motor Patterns in Young Children." Quest (May, 1965), p. 44.
- Hartley, Ruth E. "Play, The Essential Ingredient." Childhood Education, 48:2 (1971), p. 81.
- Hartup, William W. "Learning in the Preschool Years." The Journal of Nursery Education, 18:2 (1962).
- Hawkes, Glenn R., and Damaris Pease. Behavior and Development From 5 to 12. New York: Harper & Row, Publishers, 1962.
- Hechinger, Fred M. Pre-School Education Today. Garden City, New York: Doubleday and Company, Inc., 1966.
- Heinz, Mamie W. Growing and Learning in the Kindergarten. Richmond, Virginia: John Knos Press, 1959.
- Hellebrandt, Frances A., et al. "Physiological Analysis of Basic Motor Skills: Growth and Development of Jumping." American Journal of Physical Medicine, 40:1 (1961), pp. 16-18, 23.
- Herkowitz, Jacqueline. "Movement Experience for Preschool Children." Journal of Physical Education and Recreation, 48:3 (March, 1977) pp. 15-16.
- Hicks, J. Allan. "The Acquisition of Motor Skill in Young Children." Child Development, 1:2 (1930), pp. 90-103.
- Hildreth, Gertrude. Child Growth Through Education. New York: Ronald Press Co., 1948.
- Hilgard, Ernest R. Theories of Learning. New York: Appleton-Century-Crofts, Inc., 1948.
- Hill, James Fred. "Interrelations of the Reaction Time, Movement Time, Motor Ability, and Physical Fitness of Children Five Through Eight Years Old." (Unpub. doctoral dissertation, University of Georgia, 1971.)
- Holt, John. How Children Learn. New York: Pitman Publishing Corporation, 1969.
- Hymes, James L. Teaching the Child Under Six. Columbus, Ohio: Charles E. Merrill Publishing Co., 1968.

- Isaac, Stephen, and William B. Michael. Handbook In Research and Evaluation. San Diego, California: Edits Publishers, 1971.
- Jackson, Philip W. Life in Classrooms. New York: Holt, Rinehart and Winston, Inc., 1968.
- Jenkins, Gladys Gardner, Helen S. Shacter, and William W. Bauer. These Are Your Children. Chicago: Scott Foresman and Company, 3rd ed., 1966.
- Jenkins, David H. "Interdependence In The Classroom." Journal of Educational Research, xlv:2 (1951), pp. 137-144.
- Jersild, A. T., and S. F. Bienstock. "Development of Rhythm in Young Children." Child Development Monographs, 22 (1935), pp. 85-96.
- Jones, T. D. "The Development of Certain Motor Skills and Play Activities in Young Children." Child Development Monographs, 26 (1939), pp. 148-149.
- Jones, H. E. "Dextrality as a Function of Age." Journal of Experimental Psychology, 14 (1931), pp. 125-143.
- Kerlinger, Fred N. Foundations of Behavioral Research. New York: Holt, Rinehart and Winston, Inc., 1964.
- Kephart, Newell. The Slow Learner in the Classroom. Columbus, Ohio: Charles E. Merrill Publishing Company, 2nd ed., Bell and Howell Company, 1960.
- Kirchner, Glenn. Physical Education for Elementary School Children. Dubuque, Iowa: Wm. C. Brown Company Publishers, 3rd ed., 1976.
- Kleiber, Douglas A. "Playing To Learn." Quest. Monograph 26, (Summer, 1976), p. 68.
- Koenig, Frances G. "Classroom Teacher Guidance in Relation To Learning Activities." Understanding The Child, 20:2 (1951).
- Kolesnik, Walter B. Humanism and/or Behaviorism in Education. Boston: Allyn and Bacon, Inc., 1975.
- Landreth, Catherine. Early Childhood. New York: Alfred A. Knopf, 1976.
- Langer, W. C. "The Role of Organization in the Learning of a Sensorimotor Task." Journal of Psychology, 2 (1936), pp. 317-325.
- Latchaw, Marjorie, and Glen Egstrom. Human Movement. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1969.
- Lawther, John D. The Learning of Physical Skills. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1968.

- Leighty, Doris Lee. "Relationship of a Planned Program in Physical Education to Personality Development in the Kindergarten Child." (Unpub. doctoral dissertation, George Peabody College for Teachers, 1968.)
- Lepper, Mark R., and David Greene. "Undermining Children's Intrinsic Interest with Extrinsic Reward." Journal of Personality and Social Psychology, 28:1 (1973).
- Leslie, Mary Dee. "Effects of Movement Exploration on Physical Fitness and Motor Ability in Kindergarten and Primary Grades." (Unpub. doctoral dissertation, University of Georgia, 1969.)
- Lewis, M. M. Language, Thought and Personality. New York: Basic Books, 1963.
- Lieberman, J. N. "Playfulness and Divergent Thinking: An Investigation of Their Relationship at the Kindergarten Level." Journal of Genetic Psychology, 107 (1965), pp. 219-224.
- Lissa, Lillian De. Life in the Nursery School in Early Babyhood. London/ New York/ Toronto: Longmans Green and Co., 1949.
- Long, John, and Charles H. Madsen. "Five Year Olds as Behavioral Engineers for Younger Students in A Day Care Center." Behavior Analysis. Eugene Ramp, and George Semb, eds. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1973, p. 342.
- Maccoby, Eleanor E. et al. "Activity Level and Intellectual Functions in Normal Preschool Children." Child Development, 36 (1965).
- MacMillan, Donald L. Behavior Modification in Education. New York: Macmillan Co., 1973.
- Magdol, Mirian Sper. Perceptual Training in the Kindergarten. San Rafael, California: Academic Therapy Publications, 1971.
- Martin, Frances. Know Your Child. New York: Hinds, Hayden and Eldredge, Inc., 1945.
- Maslow, Abraham H. "Some Educational Implications of the Humanistic Psychologies." Harvard Educational Review, 38:4 (1968), pp. 685-695.
- McCaskill, Carra Lou, and Beth L. Wellman. "A Study of Common Motor Achievements at the Preschool Ages." Child Development, 9 (1938), pp. 141-150.
- Mead, G. H. Mind, Self, and Society. Chicago: University of Chicago Press, 1962.
- Mednick, Sarnoff A. Learning. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1964.

- Metheny, Eleanor. Movement and Meaning. New York: McGraw Hill Book Company, 1968.
- Millard, Cecil V. Child Growth and Development in the Elementary School Years. Boston: D. C. Heath and Co., revised edition, 1958.
- Minor, Ruby. Early Childhood Education: Its Principles and Practices. New York: D. Appleton-Century Co., 1937.
- Moffitt, Mary W. "Play As a Medium for Learning." JOHPER, 43:6 (1972), pp. 45-47.
- Moustakas, Clark E., and Cereta Perry. Learning to be Free. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1973.
- Neill, A. S. Summerhill: A Radical Approach to Child Rearing. New York: Hart Publishing Co., 1960.
- Nixon, Ruth H., and Clifford L. Nixon. Introduction to Early Childhood Education. New York: Random House, 1971.
- Northrup, Anne Holmes. Child Development Principles in Kindergarten Education. Greenfield, Indiana: Wm. Mitchell Printing Co., 1954.
- Olson, Willard C. Child Development. Boston: D. C. Heath and Co., 1959.
- Oxedine, Joseph B. Psychology of Motor Learning. New York: Appleton-Century-Crofts, Division of Meredith Corporation, 1968.
- Painter, Genevieve. "The Effect of a Rhythmic and Sensory Motor Activity Program on Perceptual Motor Spatial Abilities of Kindergarten Children." Exceptional Children, 33 (1966), pp. 113-116.
- Patterson, C. H. Humanistic Education. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1973.
- Peterson, Helen Thomas. Kindergarten The Key to Child Growth. New York: Exposition Press, 1958.
- Plack, Jeryaln J., and Jacqueline Shick. "Development of Space Perception." Journal of Physical Education and Recreation, 47:7 (1976).
- Porter, Lorena. Movement Education for Children. American Association of Elementary-Kindergarten-Nursery Educators, NEA Center, 1969.
- Prescott, Daniel A. The Child in the Educative Process. New York: McGraw Hill Co., 1957.

- Pryor, Helen Brenton. As the Child Grows. New York: Silver Burdett Co., 1943.
- Rand, Winifred, Mary E. Sweeny, and E. Lee Vincent. Growth and Development of the Young Child. Philadelphia: W. B. Saunders Co., 1951.
- Rowen, Betty. The Children We See. New York: Holt, Rinehart, and Winston, Inc., 1973.
- Rudolph, Marguerite, and Dorothy H. Cohen. Kindergarten A Year of Learning. New York: Appleton-Century-Crofts, 1964.
- Ryan, Bernard, Jr. Your Child and the First Year of School. New York and Cleveland: The World Publishing Co., 1969.
- Saylor, J. Galen, and William M. Alexander. Planning Curriculum for Schools. Chicago: Holt, Rinehart and Winston, Inc., 1974.
- Saylor, J. Galen, and William M. Alexander. Curriculum Planning for Better Teaching and Learning. New York: Rinehart and Company, Inc., 1954.
- Schurr, Evelyn. Movement Experiences for Children: A Humanistic Approach to Elementary School Physical Education. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 2nd ed., 1975.
- Schurr, Evelyn. Movement Experiences for Children: Curriculum and Methods for Elementary School Physical Education. New York: Appleton-Century-Crofts, Meredith Corporation, 1967.
- Seefeldt, Carol, ed. Curriculum for the Preschool-Primary Child. Columbus, Ohio: Charles E. Merrill Publishers Co., 1976.
- Siedentop, D. Physical Education: Introductory Analysis. Dubuque, Iowa: Wm. C. Brown Co., 1972.
- Simon, Julian L. Basic Research Methods in Social Science. New York: Random House, 1969.
- Sinclair, Caroline B. Movement of the Young Child Ages Two to Six. Columbus, Ohio: Charles E. Merrill Publishing Co., 1973.
- Sinclair, Caroline B. Movement and Movement Patterns of Early Childhood. Richmond, Virginia: Division of Educational Research and Statistics, State Department of Education, June, 1971.
- Skinner, B. F. Cumulative Record. New York: Appleton-Century-Crofts, 1959.
- Smart, Mollie S., and Russell C. Smart. Children Development and Relationships. New York: The Macmillan Company, 1967.

- Smith, Paul. "Perceptual Motor Skills and Reading Readiness of Kindergarten Children." JOHPER, 4:4 (1970), pp. 43-44.
- Spodek, Bernard. "Early Learning for What?" Phi Delta Kappan, L;& (March, 1969), p. 396.
- Stanley, Sheila. Physical Education: A Movement Orientation. New York: McGraw-Hill, 1969.
- Stecher, Mirian B. "Concept Learning Through Movement Improvisation." Young Children (Jan. 1970), pp. 143-153.
- Stone, Joseph L., and Joseph Church. Childhood and Adolescence. New York: Random House, 1968.
- Strang, Ruth. An Introduction to Child Study. New York: The Macmillan Company, 4th ed., 1960.
- Thorndike, Edward L. The Fundamentals of Learning. Teachers College, Columbia University, 1932.
- Todd, Vivian Edmiston, and Helen Heffernan. The Years Before School. New York: Macmillan Co., 1964.
- Vannier, Maryhelen, Mildred Foster, and David Gallahue. Teaching Physical Education in Elementary Schools. Philadelphia: W. B. Saunders Company, 1971.
- Wagnalls and Funk. Funk and Wagnalls Dictionary. New York: Funk and Wagnalls Company, 1963.
- Weber, Evelyn. Early Childhood Education: Perspectives on Change. Worthington, Ohio: Charles A. Jones Publishing Company, 1970.
- Weinberg, Carl. Humanistic Foundations of Education. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1972.
- Wellman, Beth L. "Motor Achievement of Preschool Children." Childhood Education, 13 (1937), p. 311.
- Werner, Peter. "Physical Education During the Pre-school Years." The Physical Educator, 29:4 (Dec. 1972), pp. 180-183.
- Werner, Peter. "Movement Experiences for Preschool Children." The Physical Educator, 32:4 (1975), pp. 182-185.
- Whitehurst, Katurah E. "What Movement Means to the Young Child." JOHPER, 42:5 (1971), p. 35.
- Wickstrom, Ralph L. Fundamental Motor Patterns. Philadelphia: Lea and Febriger, 1970.

- Wills, Clarice Dechert, and Lucile Lindberg. Kindergarten For Today's Children. Chicago: Follett Publishing Co., 1967.
- Wilson, Robert M., James H. Humphrey, and Dorothy D. Sullivan. Teaching Reading Through Creative Movement. United States of America: Kimbo Music Publishing Co., 1969.
- Winett, Richard, and Robin C. Winkler. "Current Behavior Modification in the Classroom Be Still, Be Quiet, Be Docile." Journal of Applied Behavior Analysis, 2 (1972)
- Winters, Shirly J. Creative Rhythmic Movement. Dubuque, Iowa: Wm. C. Brown Company, Publishers, 1975.
- Woodward, D. M. The Earliest Years. London: Pergamon Press, 1968.
- Wright, Logan. "Highlights of Human Development, Birth to Age Eleven." Perceptual-Motor Foundations: A Multidisciplinary Concern. Washington, D.C. AAHPER, 1969.
- Zigler, Edward. "Play and Child Development." JOHPER, 43:6 (June, 1972), p. 26.

APPENDIXES

APPENDIX A

INFORMAL REQUEST FROM HARVEY TEDFORD, PHYSICAL
EDUCATION SPECIALIST, STATE DEPARTMENT
OF EDUCATION

J. D. GIDDENS
ASST. SUPERINTENDENT
INSTRUCTION

EARL CROSS
ASST. SUPERINTENDENT
STATE-FEDERAL

TOM CAMPBELL
ASST. SUPERINTENDENT
FINANCE

State Department of Education

LESLIE FISHER, Superintendent
E. H. McDONALD, Deputy Superintendent
LLOYD GRAHAM, Associate Deputy Superintendent

Oklahoma City, Oklahoma 73105

November 7, 1975

Mrs. Sally Gregory
Colvin Center
Oklahoma State University
Stillwater, Oklahoma

Dear Mrs. Gregory:

We definitely need more materials available for our teachers in the area of "Movement Exploration." If you have students available to research and put this material together in practical teaching form, it would be appreciated.

Sincerely,

Harvey Tedford
Physical Education Specialist
State Department of Education

p1

APPENDIX B

LIST OF "ADDITIONS"

Additions

1. Apparatus Work--Stressing hanging, climbing, supporting, balancing and traveling in various ways.
2. Awareness of others and their feelings.
3. Visual trading activities.
4. Motor Planning--Ability of a child to plan and perform a motor act.

APPENDIX C

PILOT STUDY - PHYSICAL EDUCATION SPECIALISTS

<u>Name</u>	<u>Sex</u>	<u>Institution</u>	<u>Teaching Experience</u>
Lance Lamport	M	Public Research University	Elementary - 3 College - 3
Barbara Marshall	F	Public School	Elementary - 5 College - 1
Mary Ann Thompson	F	Public Research University	Elementary - 3 College - 3

*University employees classified by the Carnegie Commission's
booklet, A Classification of Institutions of Higher Education.

APPENDIX D

**PILOT STUDY - GROWTH AND DEVELOPMENT
SPECIALISTS**

<u>Name</u>	<u>Sex</u>	<u>*Institution</u>	<u>Teaching Experience</u>
Leon List	F	Public Research University	Preschool - 22 College - 20
Judy Powell	F	Public Research	Preschool - 5 Elementary - 1 Junior High - 1 Senior High - 1 College - 1
Elizabeth Starkweather	F	Public Research University	College - 20

*University employees classified by the Carnegie Commission's
booklet, A Classification of Institutions of Higher Education.

APPENDIX E

PILOT STUDY SURVEY INSTRUMENT

Date

Dear

I am presently a doctorate student in the Physical Education Department at Oklahoma State University. I am conducting a study to determine the movement areas applicable to the growth and development of a five year old child. A rating scale will be sent to one hundred nationally recognized early childhood experts in the fields of growth and development and physical education. At this time I am conducting a pilot study with the expertise of people who have had a great deal of experience within their field of study. I feel that you are an excellent choice to participate as one of the judges in this pilot study.

In order to determine the appropriate movement areas, a list of movement areas was compiled from the review of literature. A rating scale has been designed to rate the importance of each movement area in relation to planning a movement curriculum for the growth and development of the five year old child. A set of definitions has been established to specify the exact meaning of each movement area. An explanation of the individual rating areas is provided to clarify the degree of emphasis for the identified movement area.

I would appreciate you taking the time to complete the rating scale as soon as possible and returning the attached forms through the campus mail to

Margaret Crawford
Colvin Center - Physical Education Department
OSU Campus

A blank sheet has been included in case you have any suggestions which would improve my study.

Your participation as a judge for my pilot study is deeply appreciated. If you need any clarifications, please feel free to contact me at home (377-5196) or at work (624-5493).

Thank you,

Margaret Crawford

RATING SCALE

- 5 = EXTREMELY IMPORTANT: This area should receive primary emphasis in ninety percent of the movement activities planned for the yearly program.
- 4 = VERY IMPORTANT: This area should be emphasized in the majority, fifty percent or more, of the movement activities planned for the yearly program.
- 3 = SIGNIFICANTLY IMPORTANT: This area should receive approximately thirty-three percent of the emphasis in the movement activities planned for the yearly program.
- 2 = IMPORTANT: This area should receive twenty-five percent of the emphasis in the movement activities planned for the yearly program.
- 1 = LITTLE IMPORTANCE: This area should be afforded at some time in the movement activities planned for the yearly program, but does not necessitate re-emphasis.
- 0 = NO IMPORTANCE: This area does not contribute to the growth and development of a five-year old child.

Additions: If there are any movement areas not listed which should be considered within the yearly movement program for the five-year old child, please add and rate. The author would appreciate a definition for any additional movement area.

- * Place a checkmark under the preferred rating choice for each movement area.

MOVEMENT AREAS APPLICABLE TO THE GROWTH
AND DEVELOPMENT OF THE FIVE-YEAR OLD CHILD

RATING SCALE

Area	Extremely Important	Very Important	Significantly Important	Important	Little Importance	No Importance
<u>Perceptual Motor:</u> "Perceptual motor development describes an orderly process which involves receiving and transmitting input information via various internal and external sensory pathways--vision, touch, kinesthetic, smell, taste, hearing, proprioceptive, balance." (3:113)						
<u>Balance:</u> "Balance is the control of one's position in relation to his center of gravity in order to move effectively." (1:166)						
<u>Coordination:</u> "Coordination, essentially composed of two ingredients--laterality and directionality, refers to the quality of the movement and includes the accuracy, ease, and efficiency of the performance." (1:10)						
<u>Poise:</u> "Physical ease or balance in bearing or movement." (7:1043)						
<u>Body Image:</u> "Impression child has of the nature of his body and its potentialities for movement. Development of an adequate body image involves knowledge of the body parts, what they are capable of doing, how to make them do it, and how much space they occupy." (12:58)						
<u>Spatial Awareness:</u> "Spatial awareness is the concept of the relationship between the body and body parts with objects in space." (11:36)						

<p><u>Rhythm:</u> "In movement, rhythm is the relationship between time and force factors, and is manifested through repetition by the kinesthetic sense." (14:64)</p>						
<p><u>Basic Movements:</u> Basic movements involve the integrated dimensions of movement of body parts, locomotor movement, moving implements and objects, and moving with others. (4:90)</p>						
<p><u>Color and Form Perception:</u> Distinguishing something in relation to a phenomenon of "light" and/or the shape and structure via a capacity for visual comprehension.</p>						
<p><u>Communication Skills:</u> These are skills which allow an individual to express himself physically, socially, emotionally, cognitively and/or verbally.</p>						
<p><u>Gross Motor Abilities:</u> These are movements involving the large muscle groups of the body.</p>						
<p><u>Fine Motor Abilities:</u> These are movements involving the small muscle groups of the body.</p>						
<p><u>Creative Opportunities:</u> Creativity is a process which allows an individual to "explore, search, investigate, and discover movement in order to further his awareness of his body, movement, rhythm, space, force, and creativity." (14:84)</p>						
<p><u>Manipulative Skills:</u> "A manipulative skill is one in which a child handles some kind of a play object, usually with his hands, but it can involve the feet and other parts of the body." (5:137)</p>						
<p><u>Physical Fitness:</u> Developing and attaining a satisfactory physical working capacity in regards to strength, endurance, flexibility, agility, power, and speed. (9:95)</p>						

Axial Movements: "Axial movements are static postures that involve bending, stretching, twisting, turning, and the like.: (8:68)

Posture: "Human posture refers to the arrangement of the body parts in relation to each other. Since the human body assumes many positions an individual has not one, but many postures. Because each individual is unique, his postures are also a unique reflection of his self, his genes, his environments, his motives, feelings, and aspirations." (10:80)

Mimeticing: "The term 'mimetic' literally means to 'imitate.' The child should move like or act out something he has heard or seen." (13:43)

Direct Competition: "A contrast between two or more individuals striving for an object which only one of them can accomplish." (6:23)

Indirect Competition: "Occurs when an individual is striving for a specific goal and the success or failure of his obtaining that goal is not dependent upon other people." (6:23)

Relaxation: "The learning of conscious control of muscle tonus and the ability to reduce it at will." (2:32)

ADDITIONS:

Background Information: Please fill in the below information.

1. Name _____
2. Male _____ Female _____
3. Type of institution you are associated with:

4. Years of teaching experience:

preschool level	_____
elementary level	_____
junior high level	_____
high school level	_____
college level	_____
Total	_____
5. Number of publications:

journal articles	_____
books	_____
Total	_____

APPENDIX F

FINAL STUDY SURVEY INSTRUMENT

January 26, 1977

Dear Educator:

I am presently a doctorate student in the Physical Education Department at Oklahoma State University, Stillwater, Oklahoma. I am conducting a thesis study to determine the movement areas applicable to the growth and development of a five-year old child. A rating scale is being sent to one hundred nationally recognized early childhood experts in the fields of growth and development and physical education.

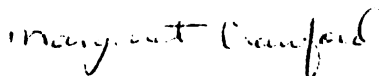
You have been identified by the American Alliance of Health, Physical Education and Recreation as being an expert in the field of elementary physical education, and I feel that you are an excellent person to participate as a judge in this study. In order to determine the appropriate movement areas, a list of movement areas was compiled from the review of literature. The individual movement areas are not separate entities within themselves, but need to be viewed as such in order to rate each one. A rating scale has been designed to rate the importance of each movement area in relation to planning a movement curriculum for the growth and development of the five-year old child. A set of definitions has been established to specify the exact meaning of each movement area. An explanation of the individual rating area is provided to clarify the degree of emphasis for the identified movement area.

For my study, I would like to list your name as one of the panel of experts who completed the rating scale. However, you should know that the data will be reported only in the aggregate, and individual responses will not be associated with names.

I would appreciate your taking the time to complete the rating scale by February 25, 1977 and returning the attached forms. Your participation as a judge for my study is deeply appreciated.

Thank you for your assistance.

Sincerely,



Margaret Crawford

pkb

January 25, 1977

Dear Educator:

I am presently a doctorate student in the Physical Education Department at Oklahoma State University, Stillwater, Oklahoma. I am conducting a thesis study to determine the movement areas applicable to the growth and development of a five-year old child. A rating scale is being sent to one hundred nationally recognized early childhood experts in the fields of growth and development and physical education.

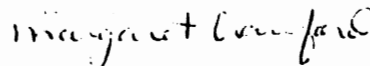
You have been identified by the Society for Research in Child Development as being an expert in the field of growth and development, and I feel that you are an excellent person to participate as a judge in this study. In order to determine the appropriate movement areas, a list of movement areas was compiled from the review of literature. The individual movement areas are not separate entities within themselves, but need to be viewed as such in order to rate each one. A rating scale has been designed to rate the importance of each movement area in relation to planning a movement curriculum for the growth and development of the five-year old child. A set of definitions has been established to specify the exact meaning of each movement area. An explanation of the individual rating area is provided to clarify the degree of emphasis for the identified movement area.

For my study, I would like to list your name as one of the panel of experts who completed the rating scale. However, you should know that the data will be reported only in the aggregate, and individual responses will not be associated with names.

I would appreciate your taking the time to complete the rating scale by February 25, 1977 and returning the attached forms. Your participation as a judge for my study is deeply appreciated.

Thank you for your assistance.

Sincerely,



Margaret Crawford

pkb

RATING SCALE

- 5 = EXTREMELY IMPORTANT: This area should receive primary emphasis in ninety percent of the movement activities planned for the yearly program.
- 4 = VERY IMPORTANT: This area should be emphasized in the majority, fifty percent or more, of the movement activities planned for the yearly program.
- 3 = SIGNIFICANTLY IMPORTANT: This area should receive approximately thirty-three percent of the emphasis in the movement activities planned for the yearly program.
- 2 = IMPORTANT: This area should receive twenty-five percent of the emphasis in the movement activities planned for the yearly program.
- 1 = LITTLE IMPORTANCE: This area should be afforded at some time in the movement activities planned for the yearly program, but does not necessitate re-emphasis.
- 0 = NO IMPORTANCE: This area does not contribute to the growth and development of a five-year old child.

Additions: If there are any movement areas not listed which should be considered within the yearly movement program for the five-year old child, please add and rate. The author would appreciate a definition for any additional movement area.

- * Place a checkmark under the preferred rating choice for each movement area.

MOVEMENT AREAS APPLICABLE TO THE GROWTH
AND DEVELOPMENT OF THE FIVE-YEAR OLD CHILD

RATING SCALE

Area	Extremely Important	Very Important	Significantly Important	Important	Little Importance	No Importance
Perceptual Motor: "Perceptual motor development describes an orderly process which involves receiving and transmitting input information via various internal and external sensory pathways--vision, touch, kinesthetic, smell, taste, hearing, proprioceptive, balance." (3:113)						
Balance: "Balance is the control of one's position in relation to his center of gravity in order to move effectively." (1:166)						
Coordination: "Coordination, essentially composed of two ingredients--laterality and directionality, refers to the quality of the movement and includes the accuracy, ease, and efficiency of the performance." (1:10)						
Poise: "Physical ease or balance in bearing or movement." (7:1043)						
Body Image: "Impression child has of the nature of his body and its potentialities for movement. Development of an adequate body image involves knowledge of the body parts, what they are capable of doing, how to make them do it, and how much space they occupy." (12:58)						
Spatial Awareness: "Spatial awareness is the concept of the relationship between the body and body parts with objects in space." (11:36)						
Rhythm: "In movement, rhythm is the relationship between time and force factors, and is manifested through repetition by the kinesthetic sense." (14:64)						
Basic Movements: Basic movements involve the integrated dimensions of movement of body parts, locomotor movement, moving implements and objects, and moving with others. (4:90)						
Color and Form Perception: Distinguishing something in relation to a phenomenon of "light" and/or the shape and structure via a capacity for visual comprehension.						
Communication Skills: These are skills which allow an individual to express himself physically, socially, emotionally, cognitively and/or verbally.						
Gross Motor Abilities: These are movements involving the large muscle groups of the body.						
Fine Motor Abilities: These are movements involving the small muscle groups of the body.						
Creative Opportunities: Creativity is a process which allows an individual to "explore, search, investigate, and discover movement in order to further his awareness of his body, movement, rhythm, space, force, and creativity." (14:84)						
Manipulative Skills: "A manipulative skill is one in which a child handles some kind of a play object, usually with his hands, but it can involve the feet and other parts of the body." (5:137)						
Physical Fitness: Developing and attaining a satisfactory physical working capacity in regards to strength, endurance, flexibility, agility, power, and speed. (9:95)						

<p><u>Axial Movements:</u> "Axial movements are static postures that involve bending, stretching, twisting, turning, and the like." (8:68)</p>						
<p><u>Posture:</u> "Human posture refers to the arrangement of the body parts in relation to each other. Since the human body assumes many positions an individual has not one, but many postures. Because each individual is unique, his postures are also a unique reflection of his self, his genes, his environments, his motives, feelings, and aspirations." (10:80)</p>						
<p><u>Mimetic:</u> "The term 'mimetic' literally means to 'imitate.' The child should move like or act out something he has heard or seen." (13:43)</p>						
<p><u>Direct Competition:</u> "A contrast between two or more individuals striving for an object which only one of them can accomplish." (6:23)</p>						
<p><u>Indirect Competition:</u> "Occurs when an individual is striving for a specific goal and the success or failure of his obtaining that goal is not dependent upon other people." (6:23)</p>						
<p><u>Relaxation:</u> "The learning of conscious control of muscle tonus and the ability to reduce it at will." (2:32)</p>						

ADDITIONS:

BIBLIOGRAPHY

1. Anderson, Marian H., Elliot, Margaret E., and Jeanné, LaBerge. Play With A Purpose. New York and London: Harper and Row Publishers, 1966.
2. Arnheim, Daniel D., and Sinclair, William A. The Clumsy Child. St. Louis: The C. V. Mosley Co., 1975.
3. Corbin, Charles B. A Textbook of Motor Development. Dubuque, Iowa: Wm. C. Brown Co. Publishers, 1973.
4. Corbin, Charles B. Becoming Physically Educated in the Elementary School. Philadelphia: Lee and Folger, 1971.
5. Dauer, Victor P. Essential Movement Experiences for Pre-School and Primary Children. Minneapolis, Minnesota: Burgess Publishing Co., 1972.
6. Fait, Nellis F. Physical Education for the Elementary School Child, 3rd ed. Philadelphia: W. B. Saunder's Co., 1976.
7. Funk and Wagnalls, Funk and Wagnalls Standard College Dictionary. New York: Funk and Wagnalls Co., 1963.
8. Gallahue, David L. Motor Development and Movement Experiences for Young Children (3-7). New York: John Wiley & Sons, Inc., 1976.
9. Kirchner, Glenn. Physical Education for Elementary School Children, 3rd ed. Dubuque, Iowa: Wm. C. Brown Co. Publishers, 1976.
10. Latchaw, Majorie, and Egstrom, Glen. Human Movement. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1969.
11. Schurr, Evelyn L. Movement Experiences for Children: A Humanistic Approach to Elementary School Physical Education. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975.
12. Vannier, Maryhelen, Foster, Mildren, and Gallahue, David. Teaching Physical Education in Elementary Schools, 5th ed. Philadelphia: W. B. Saunder's Co., 1971.
13. Wilson, Robert M., Humphrey, James H., and Sullivan, Dorothy D. Teaching Reading Through Creative Movement. United States of America: Kimbo Music Publishing Co., 1969.
14. Winters, Shirley J. Creative Rhythmic Movement. Dubuque, Iowa: Wm. C. Brown Co. Publishers, 1975.

BACKGROUND INFORMATION: Please fill in the information below.

1. Name _____
 2. Male _____ Female _____
 3. Type of institution you are associated with: _____

 4. Years of teaching experience: I have taught at (please fill in all that apply):

<u>Yes</u>	<u>No</u>	
—	—	Pre-school level # of years _____
—	—	Elementary level # of years _____
—	—	Junior high level # of years _____
—	—	High school level # of years _____
—	—	College level # of years _____
-

APPENDIX G

PHYSICAL EDUCATION SPECIALISTS

<u>Name</u>	<u>Sex</u>	<u>*Institution</u>	<u>Teaching Experience</u>
1. Larry Albertson	M	Public Comprehensive University	Preschool - 2 Elementary - 6 College - 4
2. Lee Allsbrook	M	Public Comprehensive University	Preschool - 3 Elementary - 13 College - 4
3. Margaret Criekenberger	F	Public Comprehensive University	Senior High - 2 College - 25
4. Margaret Ellis	F	Foreign University	Junior High - 6 Senior High - 6 College - 18
5. Jane Fink	F	Public Research University	Elementary - 5 Junior High - 3 Senior High - 5 College - 30
6. Betty Flinchum	F	Public Research University	Preschool - 7 Elementary - 3 Junior High - 3 College - 11
7. Robert Frederick	M	Public Comprehensive University	Preschool - 1 Elementary - 7 College - 2
8. Abraham Friedman	M	Public Comprehensive University	Preschool - 14 Elementary - 4 College - 15
9. David Gallahue	M	Public Research University	Preschool - 12 Elementary - 12 College - 7
10. Bonnie Gilliom	F	Educational Consultant	Elementary - 3 Junior High - 3 Senior High - 1 College - 8

<u>Name</u>	<u>Sex</u>	<u>*Institution</u>	<u>Teaching Experience</u>
11. Phyllis A. Glaser	F	Public School	Elementary - 24 Junior High - 6 Senior High - 2
12. George Graham	M	Public Research University	Elementary - 3 Junior High - 3 College - 4
13. Barry Green	M	Public Doctoral Granting University	Preschool - 4 Elementary - 12 Junior High - 4 Senior High - 7 College - 7
14. Leigh A. Heller	F	Public School	Elementary - 15 Senior High - 7
15. Jacqueline Herkowitz	F	Public Research University	Preschool - 7 Elementary - 3
16. Sandy R. Hick	F	Educational Consultant	Elementary - 5 College - 10
17. Sue Jones	F	Public Research University	Preschool - 4 Senior High - 3 College - 13
18. Betty Keough	F	Public Doctoral Granting University	Elementary - 8 Junior High - 3 Senior High - 4 College - 16
19. Jane Myers Krugen	F	Public Comprehensive University	Preschool - 14 Elementary - 20 Junior High - 3 Senior High - 1 College - 14
20. Hayes Krugen	M	Public Comprehensive University	Elementary - 20 College - 7
21. Amelia Lee	F	Public Comprehensive University	Preschool - 1 Elementary - 8 Junior High - 2 Senior High - 2 College - 6

<u>Name</u>	<u>Sex</u>	* <u>Institution</u>	<u>Teaching Experience</u>
22. Fred Leider	M	Public School	Preschool - 5 Elementary - 7 Junior High - 12 Senior High - 12 College - 2
23. Jack H. Liewellyn	M	Public Comprehensive University	College - 5
24. Gloria Miles	F	Public Research University	Preschool - 2 Elementary - 4 Junior High - 12 Senior High - 2 College - 2
25. Don Morris	M	Public School	Preschool - 1 Elementary - 6 Senior High - 3 College - 5
26. Arlene Morris	F	Public Research University	College - 14
27. Glenn L. Morris	M	Graduate Student	Elementary - 5 College - 8
28. Bob Pangrazi	M	Public Comprehensive University	Preschool - 1 Elementary - 8 College - 4
29. Sally Ann Parent	F	Public Doctoral Granting University	Preschool - 2 Elementary - 7 Junior High - 3 College - 9
30. Carolyn J. Rasmus	F	Public Doctoral Granting University	Preschool - 2 Elementary - 7 Junior High - 3 College - 9
31. Mary Ann Robertson	F	Public Research University	Elementary - 4 College - 4
32. Linda Scott	F	YMCA	Preschool - 11 Elementary - 11 Junior High - 11 Senior High - 11

<u>Name</u>	<u>Sex</u>	<u>*Institution</u>	<u>Teaching Experience</u>
33. Edgar Sellers	M	Public School	Preschool - 3 Elementary - 24 Junior High - 6 Senior High - 1
34. Elba G. Stafford	F	Public Research University	Elementary - 5 Junior High - 1 Senior High - 9 College - 9
35. Patricia Tanner	F	Public Comprehensive University	Elementary - 3 Junior High - 6 Senior High - 6 College - 21
36. Margaret Thompson	F	Public Research University	Elementary - 3 Junior High - 6 Senior High - 3 College - 29
37. Joan S. Tillotson	F	Public Comprehensive University	Elementary - 16 Junior High - 3 Senior High - 3 College - 13
38. Mae Timer	F	State Education Department	Preschool - 2 Elementary - 2 Junior High - 2 Senior High - 2 College - 4
39. William D. VanAtta	M	Public Research University	Elementary - 16 Junior High - 2 Senior High - 2 College - 14
40. Berneda Wampler	F	Public School	Preschool - 6 Elementary - 10 Junior High - 6 Senior High - 2 College - 4
41. Peter Werner	M	Public Doctoral Granting University	Preschool - 2 Elementary - 2 College - 6

<u>Name</u>	<u>Sex</u>	<u>*Institution</u>	<u>Teaching Experience</u>
42. Sandra D. Wilbur	F	Public School	Elementary - 16 Junior High - 2 Senior High - 1 College - 2

*University employees classified by the Carnegie Commission's
booklet, A Classification of Institutions of Higher Education.

APPENDIX H

GROWTH AND DEVELOPMENT SPECIALISTS

<u>Name</u>	<u>Sex</u>	<u>*Institution</u>	<u>Teaching Experience</u>
1. Dvora Arnon	F	Public School	Preschool - 22 Elementary - 1 College - 2
2. Samuel Clark	M	Public Research University	Elementary - 10 Junior High - 2 College - 8
3. Sedahlia Crase	F	Public Research University	Elementary - 1 College - 5
4. Linda Dyal	F	Public Research University	Preschool - 10 College - 3
5. Eileen Earhart	F	Public Research University	Elementary - 9 Junior High - 1 Senior High - 1 College - 7
6. Irma Galejs	F	Public Research University	College - 14
7. Lydia Gerhardt	F	Private Liberal Arts College	Preschool - 8 Elementary - 1 College - 20
8. Joan Gildemeister	F	Public Comprehensive University	Preschool - 4 College - 6
9. Mary Jane Strattner-Gregory	F	Public Doctoral Granting University	Junior High - 7 Senior High - 2 College - 18
10. Walter Hodges	M	Public Doctoral Granting University	Elementary - 2 Junior High - 2 Senior High - 2 College - 12
11. Lōla Jackson	F	Foreign University	Preschool - 2 Junior High - 10 Senior High - 8 College - 7
12. Clyde A. Jones	M	Public Research University	Preschool - 11 Elementary - 2 Junior High - 1 Senior High - 6 College - 17

<u>Name</u>	<u>Sex</u>	<u>*Institution</u>	<u>Teaching Experience</u>
13. Judith Kuipers	F	Public Research University	Preschool - 5 Elementary - 2 College - 10
14. Jean M. Larsen	F	Public Doctoral Granting University	Preschool - 10 Elementary - 3 College - 17
15. Patrick Lee	M	Private Teacher's College	Preschool - 1 Senior High - 1 College - 8
16. Ivalee H. McCord	F	Public Research University	Preschool - 8 College - 20
17. John McCullers	M	Public Research University	College - 15
18. Mary Moffitt	F	Public Comprehensive University	Preschool - 11 Elementary - 3 High School - 7 College - 27
19. Phyllis Monda	F	Educational Therapy Center	Elementary - 3 Senior High - 1
20. Rose Mukerji	F	Public Comprehensive University	Preschool - 5 Elementary - 4 College - 21
21. Shari Wedler	F	Public Comprehensive University	Preschool - 5 Elementary - 1 College - 4
22. Stuart Offenbach	M	Public Research University	College - 12
23. Keith Osborn	M	Public Research University	Preschool - 4 Senior High - 1 College - 20
24. Thomas Parish	M	Public Research University	Preschool - 1 College - 7
25. Doris Pearce	F	Public Comprehensive University	Preschool - 9 College - 24

<u>Name</u>	<u>Sex</u>	<u>*Institution</u>	<u>Teaching Experience</u>
26. Phyllis Richards	F	Public Research University	Preschool - 17 College - 28
27. Clare Rodney	F	Public Comprehensive University	Preschool - 3 Elementary - 10 College - 9
28. Cosby Rogers	F	Public Research University	Preschool - 1 Junior High - 2 College - 4
29. Betty C. Scott	F	Public Research University	Preschool - 9 College - 11
30. Anita Southard	F	Public Research University	Preschool - 9 College - 11
31. Marjorie Stith	F	Public Research University	Preschool - 1 Senior High - 2 College - 16
32. Dahlia Stockdale	F	Public Research University	Elementary - 13 College - 10
33. Frances Stromberg	F	Public Research University	Preschool - 14 Elementary - 1 College - 25
34. Helen Sulek	F	Public Research University	College - 26
35. Cyril Svoboda	M	Public Liberal Arts College	Senior High - 2 College - 16
36. Karen Dahlberg Vanderven	F	Public Research University	Preschool - 1 College - 9
37. Mary Ford Waldrop	F	Public Research University	Preschool - 14
38. Gail Konhaus Walter	F	Public Research University	Preschool - 4 Elementary - 1 College - 8
39. Judy Williston	F	Public Comprehensive University	Preschool - 15 High School - 3 College - 13

<u>Name</u>	<u>Sex</u>	<u>*Institution</u>	<u>Teaching Experience</u>
40. Ralph Witherspoon	M	Public Doctoral Granting University	Preschool - 1 Elementary - 8 Junior High - 3 Senior High - 3 College - 35

*University employees classified by the Carnegie Commission's
booklet, A Classification of Institutions of Higher Education.

APPENDIX I

KUDER-RICHARDSON RELIABILITY COEFFICIENT

KUDER-RICHARDSON RELIABILITY COEFFICIENT

Statistical Steps:

1. The researcher recorded for each specialist on each movement area whether the movement area was rated correctly (indicated by the number 5) or incorrectly (indicated by the number 4, 3, 2, 1, or 0).
2. Count the number of movement areas that each specialist answered correctly and list the totals for each subject.
3. Add the number of correct responses and record the sum.

Number of correct answers = 484.

4. Square each number of correct answers in step 2; then add the squares and divide that sum by the number of movement areas:

$$\frac{3629}{21} = 172.80952 = 172.81$$

5. Square the result of step 3 and divide the product of the number of specialists by the number of movement areas:

$$\frac{484^2}{1848} = \frac{234256}{1848} = 126.76$$

6. Subtract the result of step 5 from the result of step 3:

$$484 - 126.76 = 357.24$$

7. Subtract the result of step 5 from the result of step 4:

$$172.81 - 126.76 = 46.05$$

8. Count the number of specialists who correctly answered, rated each movement area. List the totals for each movement area. Square each number of "correct" specialists; then add the squares and divide the sum by the number of specialists who participated in the study:

$$\frac{17009}{88} = 193.28$$

9. Subtract the result of step 5 from the result of step 8:

$$193.28 - 126.76 = 66.52$$

10. Subtract the result of step 7 and the result of step 9 from the result of step 6:

$$357.24 - 46.05 - 66.52 = 244.67$$

11. Divide the result of step 7 by $N - 1$, where N is the number of specialists who rated the survey instrument:

$$\frac{46.05}{88 - 1} = \frac{46.05}{87} = .529$$

12. Divide the result of step 11 by $(N-1)(I-1)$ where N is the number of specialists who rated the survey instrument and I is the number of movement areas in the survey instrument:

$$\frac{.529}{(88-1)(21-1)} = \frac{.529}{1740} = .141$$

13. Subtract the result of step 12 from the result of step 11:

$$.529 - .141 = .388$$

14. Divide the result of step 13 by the result of step 11. This yields the value of the Kuder-Richardson reliability coefficient:

$$\frac{.388}{.529} = .73$$

VITA

Margaret A. Crawford

Candidate for the Degree of

Doctor of Education

Thesis: IDENTIFYING THE MOVEMENT LEARNING AREAS APPLICABLE TO THE
GROWTH AND DEVELOPMENT OF A FIVE YEAR OLD CHILD

Major Field: Higher Education

Minor Field: Health, Physical Education, and Recreation

Biographical:

Personal Data: Born in Chicago, Illinois, December 3, 1947, the
daughter of Dr. and Mrs. Sterling T. Crawford.

Education: Graduated from Casady Upper School, Oklahoma City,
Oklahoma in May, 1965; received the Bachelor of Science
degree in 1969 from Lindenwood Colleges, St. Louis, Missouri,
with a major in physical education; received the Master of
Science degree from Oklahoma State University, Stillwater,
Oklahoma, in 1971, with a major in Health, Physical Education,
and Recreation; completed requirements for the Doctor of
Education degree at Oklahoma State University in July, 1977.

Professional Experience: Graduate recreation assistant, Department
of Health, Physical Education, and Recreation, at Oklahoma
State University, Stillwater, Oklahoma, 1969-1970; Graduate
teaching assistant, Department of Health, Physical Education,
and Recreation, at Oklahoma State University, 1970-1971;
Physical education instructor at Northeastern State University,
Tahlequah, Oklahoma, 1971-1972; Physical education instructor
at Fessenden Lower and Middle School, Ocala, Florida, 1972-
1974; Graduate teaching assistant, Department of Health,
Physical Education, and Leisure Science, Oklahoma State
University, 1974-1977.