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Richardson, Dorothy Anne. A Study of the Effect of Different Approaches to Gymnastics on Movement Concept. (1967) Directed by Dr. Celeste Ulrich. 110pp.

The purpose of this study was to investigate the effect of a movement education, problem solving approach to teaching gymnastics as compared to the traditional, teacher-directed approach, on the movement concept of college women. Subjects were forty-eight college women enrolled in two beginning gymnastics classes.

The Q-sort technique was used in the recording and measuring of the Doudlah Movement Concept Test. The test was administered prior to the first instructional class and again at the completion of eleven weeks of course work. Individual correlation coefficients between real-self and ideal-self were calculated by means of a nomograph. These were treated as scores in the manipulation of the data, as were the correlation coefficients between initial and final real-self and ideal-self sorts.

Fisher's "t" tests for significance of difference between both correlated and uncorrelated means were used to determine if there was a difference in movement concept between or within the classes at the beginning and at the end of the study; to determine both the direction and amount of change in the real-self and ideal-self components of movement concept; and to determine if the classes differed in the proficiencies acquired by the end of the course.

The following statistically significant results were obtained:

1. There was a difference between the initial and final movement concept scores for the movement education class.
2. There was a change in both real-self and ideal-self from beginning to end within each class.
3. There was a difference between the amount of change in the real-self as compared to the ideal-self within the movement education class.

Conclusions were drawn that both approaches result in a reevaluation and reassessment of the real-self and ideal-self, and that the movement education approach to gymnastics results in a narrowing of the discrepancy between real-self and ideal-self by encouraging students to perceive their real-self in movement as having moved closer to their ideal.

A STUDY OF THE EFFECT OF DIFFERENT
APPROACHES TO GYMNASTICS ON MOVEMENT CONCEPT

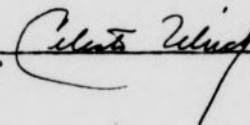
by
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A Thesis Submitted to
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Approved by:

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APPROVAL SHEET

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CHAPTER I

INTRODUCTION

Research findings in the behavioral sciences have fostered change in educational theory during the last twenty-five years. Their implications with regard to how man organizes and expresses his perceptions and how he structures his concepts have led to a reappraisal of the function and potential of many disciplines, including physical education. The interrelationship of movement and meaning has assumed a new relevance through the concept, as expressed by Metheny (32), of moving to learn and learning to move.

With implied change in theory has come desirable experimentation in educational methodology. Teaching methods in physical education are being reexamined in terms of their appropriateness to the structuring of experiences in which an individual develops concepts of the elements of movement and their significance to him as a moving human entity.

An understanding and acceptance of self would seem to be one of the major objectives in any educational program. The syndromic variable of method-content could determine the effectiveness of the learning experience with regard to the development of an adequate personality as defined by Combs (51). Jersild has stated that:

In the healthy course of the development of self one is involved in a continuous process of assimilation and integration of new experiences, new discoveries concerning one's resources, one's limitations and one's relations with oneself. (24:14)

Physical education has the potential to promote the growth of such a functionally integrated personality by providing opportunities within its structure for psychological, as well as physical, mobility.

The integrated nature of an individual's potentialities demands that physical education recognize both the unity and the independence of physiological efficiency and personality enrichment. Experiential situations in which method and content are designed to help the individual organize and interpret, in a meaningful way, his perceptions of himself in movement might well influence both the level of performance to which he aspires and the view he holds of his actual level of achievement. These factors are inherent in the psychological theory of self concept. Research has implied that an individual's changing concepts of his body and its capacity for movement, within the total concept of self, may be as influential in determining his level of performance and his attitude towards activity as the physical and intellectual boundaries within which he functions.

Body image and movement concept, two of the components of self concept, have been studied recently with regard to their relevance for physical education theory. The findings suggest that this is a significant area of research

well worthy of further investigation.

It was the possible interaction of movement and conceptual ideas which prompted the investigator to examine the effect of an activity, taught by two different approaches, on an individual's movement concept. Through the medium of gymnastics, which stresses an understanding and application of the elements and mechanics of movement, the relationship of movement concept to a method-content variable, namely a movement exploration approach as contrasted with a teacher-directed, traditional approach, was studied.

The recent emphasis upon movement education, both in the United States and in Britain, has produced empirical evidence that such an activity, in conjunction with a problem-solving method of presentation, appears to enhance the creative movement potential of children. In an environment which is designed to challenge the students to set their own goals in relation to their individual stage of development, rather than conform to the hypothetical norm, limitations set by the structure and form of specific gymnastic skills are eliminated.

Implementation of the concepts of movement education in Britain has been predominantly through "educational gymnastics" at the elementary and secondary school level. The objectives of such programs have been structured in terms of extending the objective movement knowledge and understanding of school children. The observed subjective involvement of

the children and the range of their solutions to movement tasks evidenced during the exploratory phase of the activity suggest that there may be intrinsic value in such an approach for the development of a more positive concept of the self in movement.

As the child matures his concepts of self in terms of body image and movement become more acute and immobile. By the time the student has reached college age many of his attitudes regarding his physical potentialities are comparatively stable. The intellectual atmosphere of a university tends to encourage students to think critically and analytically. Previous and existing experiences can be examined objectively and subjectively and the student can make a value judgement of the personal significance of such experiences. Observation of the movement patterns of college students has led the investigator to believe that the physical manifestations of movement concept demonstrate a negative and unfavorable opinion of self on the part of many college women.

The physical education curriculum offered at the college level shows a strong recreational predilection and instruction is seldom oriented toward basic movement patterns. This recreational bias is predicated on the assumption that the programs offered in the pre-college years have established a facility with and an understanding of the fundamental elements of movement. Yet such an assumption is frequently

unjustifiable. The dissatisfaction often expressed by students when asked about their physical abilities may well stem from their limited opportunity to explore the basic concepts of space, time and force in a physical education program structured with regard to understanding movement situations.

If such an hypothesis has a degree of validity then there is good reason to consider the inclusion of physical education activities at the college level which would review and expand on the understanding of movement concepts, thereby giving a student a broader understanding of the continuum of skilled movement and his relative position within that sequence. As a result of such insight an individual might be encouraged to revise his ideas of what he should ideally be like as a moving being and how closely he approximates that ideal in reality.

Educational psychologists (14,29,39,42) have suggested that the discrepancy between an individual's real-self concept and ideal-self concept is indicative of the degree of the individual's personality adjustment. Any process therefore which increases the self-ideal self congruency may be thought of as educationally beneficial.

Because there seems to be empirical evidence to indicate that teaching methodology can be varied and yet the same skill patterns can be learned regardless of method, the investigator considered it important to study the psychological implications of method. It was felt that personality

change might be manifest if a method involving discovery and exploration within the context of problem-solving were used in contrast to the more traditional method of teacher-direction and demonstration; and if such techniques of method embraced subject matter content differentiated as to emphasis between understanding and performance. On such an assumption the experimental design of this research was predicated.

CHAPTER II

STATEMENT OF THE PROBLEM

The Problem

It was the purpose of this study to investigate the effect of two different teaching approaches upon the movement concept of college women enrolled in beginning gymnastics classes.

The research was structured to determine whether a teaching approach oriented toward movement education and problem solving or a teaching approach oriented toward the traditional, teacher-directed concept, significantly alters the students concept of self as a moving entity.

Definitions

For the purpose of this study the following definitions were accepted:

Movement Concept. As defined by Doudlah (72), it is that view an individual has of himself as a physically mobile entity.

Movement Education. A creative and dynamic activity, with and without apparatus, in which the individual deals objectively with the basic concepts of human movement.

Problem-Solving Method. An approach to the exploration of movement in which students are presented with physical tasks which permit freedom of choice as to solution.

Traditional Gymnastics. A structured activity which incorporates predetermined skill patterns, in the form of stunts and use of apparatus, designed to accomplish specific objectives.

Teacher-Directed Method. A teaching method in which the instructor is responsible for the explanation and demonstration of specific skills and the analysis and correction of deviations from the predetermined patterns.

CHAPTER III

REVIEW OF LITERATURE

The conceptual triad of self-body-movement is the philosophical foundation stone on which the discipline of physical education is built. The interaction of these three concepts, and its implications for the theoretical structure of disciplinary method and content, provides a significant and challenging area of research.

Traditionally gymnastics has been conceived of as primarily concerned with the biological aspects of man. Its historical claim to inclusion in programs of physical education was based on this tradition, but the new surge of interest in gymnastics reflects a broader interpretation of its worth. Physical, social, emotional, and intellectual involvement in the learning process are the criteria now used to judge the extent to which a student can benefit from an activity, and the newer forms of gymnastics are cognizant of the importance of this total involvement of the learner.

In an effort to investigate one facet of the implications of an activity which purports to be concerned with the self-body-movement triad, and to determine the possible effects of such an activity on the individual's concept of self in movement, the literature was reviewed in three major

areas. The areas studied concerned teaching methodology, gymnastic subject matter, and changing conceptual implications for the self with regard to a measurable personal characteristic or an operational intervening variable.

Teaching Methods

Considerable thought and research have gone into the development of methods that structure the content of physical education. These methods have evolved in such a way as to fulfill most effectively the objectives claimed by the discipline. Over the past fifty years the methodology of teaching has been altered, modified, and expanded, for as the content and philosophy of physical education have changed so too have the concepts of how best to effect the ideas inherent in those changes.

When the European systems of gymnastics dominated the American educational scene, skill patterns were predetermined and were established authoritatively through explanation, demonstration, and drill. The teacher-pupil interaction was one of command-response. The emphasis was on the end result and was based on the priority of subject matter over student. Skill level and predetermined progressions were structured in relation to the hypothetical average of the class. This average imposed common standards, arbitrarily chosen and rigidly enforced, in teacher-selected skills. Accuracy and synchronization were the criteria of perfection, with the instruction being geared to the attainment of these

prerequisites..

As the content and method of gymnastics were founded on known anatomical and physiological data it was deemed best to use a teacher-directed method of instruction in specific movements for specific effects. This type of teaching method assured the achievement of the greatest physical development in the shortest time. The emphasis was predominantly on the development of strength, endurance, agility, flexibility, and coordination, which were solely the physical aspects of the student. It was assumed that gymnastics could alter both structure and organic function.

The very nature of formal gymnastics dictated the classification and standardization of content and method. Bukh defined gymnastics as a "formalized group activity" (12:20) demanding a set method of presentation. He warned of the complications inherent in establishing a fixed rhythm for exercises, pointing out that individuals work most effectively at their own natural pace. However, he deemed it best to have the class conform to a cadence adjusted to suit the average in ability in order to expedite the presentation and execution of the material. In keeping with other proponents of gymnastics in that era Bukh favored the use of voice signals which were a shortened description of the exercise, followed by a pause, followed by the executive word, e.g. "Quick heel raising and deep knee bending - begin!" (12:59) Skarstrom also advocated the authoritative approach

and stated that "...elements must be sharply defined in every detail, such as plane or direction, kind, extent and speed of movement; the parts of the body involved; the exact relation of these parts in the position reached by the movement; relative length of time spent in the movement and in holding position - rhythm." (41:5)

Gymnastics enjoyed great favor in the early part of the twentieth century but, with the gradual introduction in the 1920's of physical education programs based more on sports and recreation activities, a controversy arose over methods of teaching. There was growing opposition to the autocratic and militaristic "day's order". Although it was felt that the teacher should still direct the instruction, more emphasis was accorded the broader educative effects of the activity on the student. The so-called "new physical education" and informal methodology with regard to the activity interests of physical education reflected an application of the current pragmatic philosophy and psychological research in learning theory.

Hetherington (21) and Wood (44) both championed the new concept of physical education, claiming that it was a medium through which the totality of the individual was developed. The focus was on teaching the game or skill most effectively and on developing the student's motor ability. The assumption was that the new physical education contributed more to the individual student's total growth than had

the previous system. The method used, though no longer command-response, was nevertheless teacher-directed.

Williams advocated the techniques of explanation, demonstration, and drill as had been used previously when he suggested:

...the teacher should say: "Let me show you how to do that; now watch me carefully. The ball must be held so; stand this way; the arms swing so; the follow-through is done by doing so and so. Now try it. That's it. Do it again. Good. Now practice that for a while." (43:29)

This teacher-directed method is still prevalent in the field today. However, over the last fifteen years the implications of educational research have encouraged experimentation in techniques such as the group process and problem solving. The textbooks of the late 1940's and early 1950's (1,10,16,26,27) initiated the concept of group dynamics and propounded the idea of a student-centered approach which would better answer the needs of the individual in a democratic society. It was claimed that "...best learning results as the individual brings to bear upon the solutions of his problems his total equipment for learning, his human ability to think, reflect, judge, perceive, create." (27:62)

More recently Brown and Cassidy discussed method in relation to five essential conditions for the healthy development of the individual. These included provision of experiences in which success can be achieved; opportunity and respect for individual differences; encouragement and approval by the teacher; opportunities for group interaction; and the implementation of freedom of choice within a

problem solving structure. (9:112) Within such a framework they suggested that students would best be helped in the "...development of a concept of self, particularly of self in movement, through movement." (9:128)

The role of the teacher in the process of problem solving is one of presenting new experiences which will add to the learner's previous knowledge and which will encourage the discovery of relationships which were not obvious before. Through questioning, rather than telling, the teacher can guide the students in the sifting of available information, in the analyzing of possible alternatives, and in the projecting of probable consequences. (56:27) It is assumed that through this method it will be possible to foster reflective thinking and reasoned action.

Although comparatively little research has been done in physical education with respect to problem solving there is much pertinent information on the general techniques and their application in the educational literature. Certain essential functions are involved in problem solving and, despite some inconsistencies in terminology and sequential order of the various phases cited, three basic procedures seem constant. First there must be an analysis of the problem; secondly, formulation of a hypothesis on the basis of relevant information; and lastly, testing and evaluation of the hypothesis. (5,22,55) Depending on the nature of the problem the behavior induced may range on a continuum from

the simple finding of exceptions to the rule to more formal and complex reasoning. (55:260)

Bruner has advocated the problem solving method on the basis that "...it is only through the exercise of problem solving and the effort of discovery that one learns the working heuristic of discovery." (48:31) He conjectured that practice in this type of reflective thinking would lead to a method of inquiry that could be applied to a variety of tasks. Bigge also suggested that such reflective thinking on the part of the student would engender "...an increased store of generalized insights related to the subject studied and these should be incorporated at the personality level so that a permanent change in him occurs." (5:346)

Certain limitations associated with problem solving methodology were noted by several authors. The flexibility of such a method can be restricted by teachers unskilled in the techniques, thereby limiting the opportunity for creative and critical thinking by the students. (54,56) There may be negative transfer of learning where the student is unable to apply his past experience in terms of a new situation. (65) Concepts of ability may also influence the degree of difficulty that a student has in finding solutions to a problem. (46)

Several studies have been reported which relate methodology with degree of learning and retention, with varying amounts of direction, and with group participation. Ray (64)

compared two teaching methods with respect to initial learning and retention, and the degree of recall or transference after one and six weeks. The two methods compared were a traditional approach of direct and detailed instruction in which the teacher presented the material, reviewed the essential points, and demonstrated the solution to several examples, and a directed discovery approach in which the pupil was called upon to study the material on his own, contemplate leading questions, and make generalizations based on the principles discovered in the process. Ray hypothesized that there would be no difference in initial learning and retention and the experimental results substantiated this hypothesis. However, the "discovery group" showed a significant difference from the "instructed group" in retention after a six week period, suggesting that the problem solving process results in a more lasting and perhaps meaningful experience.

Craig (52), in a study comparing directed and undirected learning experiences, found that the group that had relationships and principles pointed out to them was more effective in solving problems than the group that had to search for the principles involved. The directed group were asked to solve the problem through creative application of the supplied information while the undirected group were given only the correct answer. The greater effectiveness of directing the attention of students to the logical or causal

connection between the elements of a problem suggest that the discovery process is far from unstructured and that much frustrating and fruitless exploration can be avoided by the judicious presentation of cogent information in the form of leading questions or actual statements of fact.

Hudgins and Klugman both studied the effects of group interaction on the degree of task success and the speed of problem solution. Hudgins (57) concluded from the experimental results of his study that members of a group solve significantly more problems than subjects who work independently. He did find however that group experience did not enhance individual problem solving when the group members were later tested individually. Klugman (60) found that the greater number of responses, resulting from group participation, increased the time taken to resolve the problem. He concurred with Hudgins that groups solved more problems correctly than did individuals.

It would appear that most of the studies in physical education concerning comparisons between problem solving and traditional methodology have been conducted with elementary school age groups. Research at the college level has been confined to studies concerning the effects of method on skill level and attitude in a few selected activities. Garland (74) compared the problem solving approach to the traditional approach in the teaching of swimming. The results showed no significant difference between the groups taught

by the different methods with regard to skill. However, the investigator concluded that problem solving was more successful in the area of motivation and self-direction.

La Plante (77) was interested in the effects that problem solving might have on the attitudes of students toward an activity and on their skill development. She conducted a comparative experiment with the two different methods of teaching applied to bowling. No significant difference between the groups tested at the conclusion of the study was found but, on the basis of replies to a questionnaire investigating the personal reactions of students to the problem solving method, La Plante concurred with Garland's conclusions as to the effectiveness of this method in stimulating student interest and response. Smith also conducted a study related to methodology and bowling. (81) On the basis of game averages, scores on the Scott Motor Ability Test, and results on a test of bowling knowledge, she compared the effects of problem solving method on skill, motor ability, and understanding of bowling. A significant improvement from initial to final average performance scores was evidenced by both groups, and no significant difference was found between groups in knowledge. These studies suggest that both traditional and problem solving methodology are effective in terms of enhancing motor performance and acquisition of skill.

An investigation by Zeigler (84), however, yielded

interesting results in terms of the learning of new skills. Using the medium of gymnastics, she studied the comparable effects of the traditional and problem solving methods to determine if one method produced better results in student performance. By the end of the experimental unit both groups had experienced all the actions and qualities sought within the course objectives. Two tests were administered to determine the level of student performance within a creative movement composition and four new stunts. The composition was judged on the basis of both skill and quality of movement, while the new stunts were evaluated on the basis of competitive standards. Zeigler hypothesized that there would be no difference between the groups either in quality of movement evidenced or in the ability to master new skill patterns.

She found that in the movement composition created by the individual students skill and quality were comparable for both groups, but that in the performance of a new stunt after only one demonstration the traditional, informal method seemed to produce significantly greater ability. Her conclusions were that quality of movement was not more highly developed through the problem solving method of teaching; that the ability to perceive and perform the movements necessary to complete a task was not more evident through problem solving; and that informal methodology facilitated the mastery of more difficult moves.

These research findings in physical education support the hypothesis that differences in the effects of methodology may well depend on the type of task used to evaluate such effects and on the specific aspect of movement being investigated.

The constructs of methodology are determined to a great extent by the educational theory of the day. The objectives of a teaching method reflect the relative importance attached to the teacher's contribution to the learning process as opposed to the student's contribution. During this century philosophical examination and psychological research have brought about a re-evaluation of the effectiveness of different teaching methods in developing a fully functioning man in a democratic society.

Although the teacher-directed approach to activity still persists it has evolved into a less formal and rigid presentation of skill patterns, thereby permitting the student to make minor decisions as to quantity and quality of performance. The problem solving method seems to hold great promise for the future. Research findings and empirical evidence suggest that the discovery of one's movement potentialities and limitations through creative exploration of physical problems enhances the significance of the learning process for the individual. The techniques of this method are complex in comparison to the structured simplicity of the earlier "command" method but the benefits of such a

style for both the teacher and the learner encourage its adoption.

Movement Education

Over the past decade increasing attention has been paid to the implications of movement education within the field of physical education. Hampering the understanding of this concept and its implications, however, has been the diversity of opinion as to the meaning of the term "movement education". In an effort to clarify this point, definitions were proposed at a workshop sponsored by the National Association for Physical Education of College Women in 1956. There it was stated that basic movement was "...movement carried on for its own sake, for increased understanding, or for awareness of the movement possibilities available to the human body." (36:89) Movement education was defined as "...the study of the art of movement through the tuning of the body in its training to express, to carry out skills, and to be sensitive to what it is doing." (36:89) The implications here seem to suggest that basic movement is conceptually oriented while movement education is task oriented.

Further complicating the matter was the confusion of subject matter content with teaching method. There has been a tendency to equate movement education and movement exploration. Halsey and Porter grouped the latter with games, dance, and self-testing activities, as one of the general forms of physical education (20:47), while Barrett thought

of it as "A method for teaching movement...." (3:v)

Although there is still no universally accepted definition the basic objectives of this type of activity, movement education, show a similarity no matter what it is termed. The emphasis has been placed on the value of presenting the student with a movement problem and giving him the opportunity to solve that problem in a manner suited both to his ability and to his rate of learning. Some of the potential benefits claimed from such experiences are:

1. Development of skill in and knowledge of movement.
2. Development of creative potential.
3. Satisfaction of the need for success.
4. Opportunity to progress at the student's own rate.
5. Opportunity to be a contributing member of a group.
6. Development of self-direction. (70)

The place of movement education in the total program of physical education is, as yet, not clear. In the recent literature there appears to be no definite trend to include or exclude this experience in the physical education curriculum. The movement education approach has been suggested as an excellent method of implementing the programs at the elementary school level. Barrett (3) has advocated a program for young children based on "educational gymnastics". This term is used widely in Britain where it denotes the movement exploration approach to management and control of

the body in relation to apparatus and other persons. Tillotson (69) has pointed out the need to explore also in tag and game-like activities. Halsey (19) has cited examples of programs at elementary, high school, and college level which incorporate the concepts of movement education, and both Halverson (75) and Broer (7) have suggested that increased attention needs to be given to providing exploration of the basic movement skills in a variety of circumstances.

From the literature the greatest development in movement education seems to have been through educational gymnastics as it is taught in Britain. There the emphasis in the gymnastics programs for girls has shifted from instruction in set exercises and apparatus skills to a movement exploration approach to floor and apparatus work. "Acquisition of skill is not an end in itself but the means by which children can experience and understand movement...." (31:xi) The British system stresses that rather than achieving gymnastic aims specifically, as was the objective before, the hope now is that the skill aims of gymnastics will be achieved incidentally, in conjunction with broader educational objectives.

According to Mauldon and Layson educational gymnastics serves a twofold purpose:

1. to develop efficient and skilled use of the body.
2. to stimulate an understanding and appreciation of objective movement, and an ability to invent and select appropriate actions. (31:xii)

The challenges presented to the student are not in the form of competition but rather such that each individual may succeed at his own level. The only competitive element is in the inherent challenge to the student to improve in relation to his starting point and ability, "...it is a salutary and exacting discipline to have to quell and control a competitive attitude and work solely for the sake of skill instead of striving to be first or best." (33:9) Progressions in educational gymnastics are based on the response to each task and the emphasis is on the value of the learning process more than on the specific skills attained.

Although its advocates claim that movement education fulfills all the major educational objectives, little experimental research has been conducted to substantiate their claims. As a result there have been certain criticisms of the almost universal utilization of this type of program for girls in British physical education. Munrow has pointed out the dangers of a system where "...the old heresy becomes the new orthodoxy...freedom becomes compulsory," (35:67) and has observed that, in gymnastics, freedom of movement has certain inherent disadvantages, in terms of inappropriate or extraneous movement in the achievement of the desired result. Randall and Waine (38) have cautioned against claiming a high degree of transfer from the field of movement education to activities other than dance. They suggested that "...the major contribution of basic movement to the field of skills

learning is that it provides for a standard terminology."

(38:13) Reacting to such criticism Randall stated that "...movement gymnastics are not regarded as an open sesame to all skills, except in so far as the first requisite for all skill learning is a readily coordinated, lithe, controlled body." (37:78)

Two of the major concerns of many physical educators with regard to the problems related to skill are the possibility of lower standards when catering to the whole range of abilities in a class, and the fact that there seems to be a point beyond which this type of work is incapable of development. In answer to these concerns Mauldon and Layson claimed that as no common standards are imposed it is the teacher's obligation to challenge each individual at his own level. (31:xiv) They suggest that the limitations to the development of movement education have been based in the teacher's lack of understanding of the possibilities of the material and not in the material itself. (31:xiv)

Gymnastics

Gymnastics, as an activity in the school programs of physical education, has had a pendulum-like history. From the dominant position held by the Swedish system originated by Per Ling, at the turn of the century, it has endured the doldrums of disrepute with the emergence of the "new physical education" in the 1920's and 1930's and then has gradually reasserted its place in the total program predominantly

through the recent emphasis on physical fitness and through renewed interest created by widely publicized international competition.

Throughout this swing of emphasis gymnastics has ranged from the anatomically and physiologically based exercises of the Ling system, through the more rhythmical forms advocated by Knudsen (28), Bukh (12), and Bjerksten (6), continuing through the natural flowing movements of the Carlquist (13) method, to the competitive Olympic-type gymnastics popular today and the movement education approach to apparatus work. The objectives have changed from purely physical or remedial ones to much broader educational aims encompassing the physical, psychological, and social development of the student. Similarly the methods of instruction have run the gamut from command-response to problem solving.

The current trend in physical education programs is to teach gymnastics as a competitive sport. Hughes (23) advocated this concept of gymnastics on the rationale that most other physical activities involve competition and that competitive gymnastics would thereby complement the American way of life. The Olympic events are favored and students are taught competitive apparatus skills and routines which are governed by specific rules. Evaluation procedures are based on point values allocated to each stunt depending on its difficulty, and the competitor is rated on the excellence of the performance according to the difficulty of the

combinations. (17) A list of errors commonly noted is established and a performer is penalized correspondingly. The importance of objective rating is stressed by most authorities, although Bayley suggested that gymnastics in the schools should develop initiative and creativity and he favored judging original routines composed by the students on the subjective basis of continuity, form, and ease of execution. (4:31)

There are required routines involving specific moves on each piece of equipment in competitive gymnastics. There are also optional routines in which the competitor may combine a series of prescribed stunts in his own way. For women the major events are floor exercises, side-horse vault, balance beam, and uneven parallel bars. In high school competition, tumbling and trampoline may also be included. These events are designed to include the elements of skill, grace, and rhythm rather than stress the need for and development of strength.

Gymnastics, as it is now conceived, can be a vital part of the physical education program. As an activity that deals with strength, agility, coordination, and grace it has the potential to enhance both the practical and the aesthetic aspects of human movement. The emphasis on the incorporation of sequences of movements into routines both in floor exercises and on apparatus has added a new creative dimension to an activity that was once overly stereotyped. Competition is an important part of any physical education program and

in gymnastics the individual has an opportunity to pit himself against his own past level of performance, against the restrictions of apparatus, and against an opponent.

Concept

The possible interaction of movement and conceptual ideas has been the subject of considerable speculation amongst psychologists and educators. The implications of such reciprocity for physical education are vast, but it has only been in the last few years that physical educators themselves have conducted research into the relationship of activity to concepts of self, body-image, and movement. Outside of the discipline of physical education there has been a persistent interest in the relevance of psychological constructs to educational theory, as evidenced by Wylie's compendium of research on self-concept. (45)

Jersild defined self as "...a composite of thoughts and feelings which constitute a person's awareness of his individual existence, his conception of who and what he is." (24:9) He postulated that experiences in which there is self-involvement may make a difference in the total psychology of the individual. His research indicated that a student's idea of his performance in physical activities played an important part in his total self-evaluation. (25:78)

From the literature it would seem that not only may self-concept be influenced by levels of performance but that performance itself may be reciprocally affected by the

individual's concept of himself as a moving entity. The perceptual approach to behavior as cited by Combs and Snygg (14) leads to the hypothesis that a student's concept of his ability can be a limiting factor in determining his capacity to learn.

In a study investigating the role of self-concept in achievement, Roth (65) concluded that individuals have a commitment to achieve in terms of their conception of self. The implication was that students make a conscious choice of behavior in a task-oriented situation, their choice being based on their self-concept of ability. The possibility of altering this conception was investigated by Staines. (68) He demonstrated that people significant to the student can influence the latter's self-concept favorably by creating an atmosphere of greater psychological security and by evaluating his ability positively.

The role of attitudes and feelings concerning the body in structuring the behavioral and personality patterns of an individual has been discussed by several investigators. The idea of a body schema or visual perception of the body configurations and boundaries as being the basis for the conceptual body image has been suggested by Schilder. "The body schema is the tri-dimensional image everybody has about himself." (40:11) Fisher and Cleveland, in their investigation of body image boundaries, pointed out the significance of the body, and the individual's concept of his physical

limits, in personality manifestations. "...in many ways the body is experienced as an approximate replica of some of the basic internalized systems which constitute the 'I' or 'self'." (18:351)

An individual's body is the one area in his experiential field which uniquely belongs to him and is the corporeal representation of his "base of operations" in the world. His concept of this base of operations must necessarily be significant in influencing how he conducts himself. (18:345)

Irrespective of definition there seems to be a general consensus of opinion as to the importance of body image in the individual's total concept of self.

Zion conducted a study to determine certain facets of this relationship and, on the basis of her results, concluded that body and self concepts were closely allied. (71) In the comparison of attitudes regarding movement, including physical qualities depicting the manner or style of body movement, there was a significantly high negative correlation between body-acceptance and self-acceptance suggesting that self-acceptance is strongly influenced by conceptualization of body meaning. It may well be that body-acceptance in personality attributes is a rationalizing equalizer when body-acceptance is poor, or the inverse of such a proposition.

McBee investigated the interrelationship of security of body image perceptions, movement, and their significance as a means of conceptualizing the self. (79) She found a positive correlation between high body image security and favorable concept of movement. Elbaum conducted a study to

determine if body image was positively related to motor skill development in young children. (73) Through the use of the Lincoln-Oseretsky Motor Development Scale and the Draw-a-Person test of body image she concluded that a complete body image was positively related to motor skill and suggested that physical education take this conceptual aspect of the body into account in the structuring of programs suitable for the elementary grades.

Using the Fisher and Cleveland Body Image Test, based on percepts of body regions, Mathes (78) investigated the relationship of certain aspects of body image to motor educability. Although her results were not statistically conclusive they prompted her not to reject completely the possibility of body image affecting skill, style of performance, or attitude toward activity. Herod (76) reviewed the literature on body image and suggested that the two major implications for physical education were the inclusion of a variety of sensory motor experiences in the school program, and the use of counselling to aid in the development of a secure image.

Movement concept specifically was investigated by Nation. (80) Her purpose was to compare groups enrolled in a variety of activities and observe any differences between the students' movement concept prior to their first experience and at the completion of five weeks of instruction and activity. Defining movement concept as the view the student had of herself as a physically mobile entity, she found no

difference in movement concept amongst the groups after five weeks. However, there was an improvement in movement concept in two out of the three groups from their original testing. She concluded that certain special types of activity could account for the changes and also that the students enrolling in these activities might significantly differ in their initial concept of themselves in movement.

A comprehensive study of the link between self-concept, body-image, movement-concept, and motor performance was conducted by Doudlah. (72) From her results she deduced that there seemed to be little relationship between an individual's concept of self and concept of self as a moving entity. However, there was a correlation between self-concept and body-image, and between body-image and movement-concept. "...the subjects may see themselves as individuals with a self and a body and with a body that moves but they do not see a relationship between self and movement." (72:38)

Psychological theory, substantiated by research findings, would seem to point to an interrelationship of movement and personality. The behavioral significance of the total concept of self, including the dimensions of body image and movement concept, and the effects of varied experiential situations on it, suggest that much can be done in physical education programs to help the student develop and accept his own physical image rather than have an imposed, and perhaps unattainable, image set for him.

Summary

"Teaching physical education is a road toward creative physical responses, toward enhancement of self concept in a changing environment, and toward clearer use of the thinking abilities." (34:xiii) The conceptual triad of self-body-movement which undergirds physical education theory and philosophy may well reach new dimensions if the psychological overtones of the opinions and research evidenced in the literature are recognized and put into effect. Methodology is becoming more flexible, more innovative, more challenging. Subject matter is being evaluated in terms of its total contribution to education and its individual significance to the student. The student's role and the teacher's responsibilities within the learning process are being redefined.

The distant but visible perspective of the melding of skill acquisition and personality development into one road, stretching beyond the limits of our immediate vision, is a stimulating and challenging focus for the discipline of physical education.

CHAPTER IV

PROCEDURES

Purpose of the Study

It was the purpose of this study to investigate the effect of the movement education approach and the traditionally oriented approach to teaching gymnastics, on the movement concept of college women.

Selection of Q-sort Technique

The Q-sort technique, as described by Stephenson (42), was used as a tool to determine the movement concept of students enrolled in the experimental gymnastics classes. This technique eliminated the variable of the investigator's subjective evaluation of the test items and permitted the subject to make her own personal interpretation of each statement.

Q-sort methodology involves the sorting of a set of statements typed on cards on the basis of how well each statement represents the subject's concept of herself. Such a procedure yields a clear measure of the discrepancy between the self and the ideal-self sort and simplifies the statistical correlation technique.

In this study seventy-five Movement Concept statements, as devised by Doudlah (72), were used for Q-sorting.

A copy of the statements appears in Appendix A. The subjects were asked to arrange the cards on a nine-point scale which approximated a normal distribution. The scale was set up with the left-hand side labeled "least like" and the right-hand side labeled "most like". A predetermined number of statements had to be sorted into each unit of the scale according to the degree to which they delineated the subject's concept of self and ideal-self.

The distribution of statements on the nine-point scale was as follows:

LEAST LIKE					MOST LIKE			
1	2	3	4	5	6	7	8	9
.
(2)	.	.	.	.	.	.	.	(2)
	(5)	.	.	.	.	.	.	(5)
		(9)	.	.	.	.	(9)	
			(13)	.	(13)			
				(number of statements)				(17)

As a result of the imposed distribution of the statements, based on the normal curve, the subject was required to place the two statements which she thought were least representative of her in column one. The two statements which she considered most like her had to be placed in column nine. The other statements were similarly differentiated and placed on a continuum from "least like" to "most like".

Since it was the concern of this study to investigate

how the subject actually perceived herself in a movement situation and how she would ideally like to be as a moving person, the subject was instructed to arrange the cards in two separate sorts. The subject's first distribution was sorted from the point of view of how she saw herself at that exact moment in time, and constituted the SELF SORT. The same procedure was followed in the second sorting but this time the subject sorted the statements from the point of view of how she would ideally like to be. This second sort represented the IDEAL SORT.

Statements were typed and mimeographed on biology filler paper and cut to the size of one and one-half inches by two and one-half inches. Each card was numbered to match the corresponding number on the master list of statements. Column headings, one through nine, were also typed and mimeographed, the number of statements to be arranged within each column being printed in parentheses below each numeral.

To facilitate recording and scoring two answer sheets, white paper for the SELF SORT and yellow paper for the IDEAL SORT, were used. These answer sheets replicated the columns formed by the normal distribution of the statements. An instruction sheet explaining the testing procedure was provided for each subject. A copy of the instruction sheet appears in Appendix B.

Selection of Subjects

The purpose of this study was to investigate the effects

of two different teaching approaches to gymnastics on the movement concept of college women enrolled in beginning gymnastics classes. It was necessary, therefore, to select the subjects for the experiment on the basis of their enrollment in classes which were structured by the methodological commitment of the instructors scheduled to teach those classes. Only one of the instructors was experienced in the movement education approach to gymnastics and the other instructor was selected on the basis of comparable knowledge of and experience in the traditional concept of gymnastics. Each experimental class was taught by one of these instructors.

Although this introduced the variable of the teacher's personality and its influence on the class, the investigator considered that each instructor's commitment to her own particular teaching method was more pertinent to the study than the stabilization of teacher personality through having one person teach both classes.

An attempt was made to select physical education classes at the University of North Carolina at Greensboro which met at approximately the same time of day and which had approximately the same enrollment. There were twenty-nine subjects in the traditionally oriented class which met on Mondays and Wednesdays from one o'clock until two o'clock p.m. There were twenty-six subjects in the movement education oriented class which met on Mondays and Wednesdays from three o'clock until four o'clock p.m. Students in these

classes were freshmen and sophomore women. In addition, one male student was enrolled in the traditionally oriented class.

During the first scheduled meeting of each class the subjects were informed that the general purpose of the study was to investigate student attitudes in relation to physical activity. The Q-sort technique for measuring movement concept was briefly explained and it was emphasized that the results would be interpreted in terms of group trends and not individual fluctuations. The subjects were assured that all information would be strictly confidential and that their class grade would in no way be influenced by their responses to the statements.

Administration of Tests

The second scheduled class meeting was used to administer the initial Movement Concept Test. Two rooms in Rosenthal Gymnasium had been prepared in advance with testing materials so distributed to give each subject ample space in which to manipulate the cards. At each table there were:

1. An instruction sheet
2. A set of statements and column headings
3. A white SELF SORT answer sheet
4. A yellow IDEAL SORT answer sheet
5. A pencil

To avoid conflict with classes scheduled before or

after the test administration the subjects had been told to select, on arrival, any table and begin the test as soon as they had read the instruction sheet. The investigator was available to answer any questions.

The subjects first arranged the designated number of statement cards below each column heading from the point of view of how they saw themselves at that exact moment in time. When the SELF SORT was completed the identifying numbers on the statement cards were recorded by the subjects under the appropriate column on the white answer sheet.

Following the SELF SORT the subjects repeated the same procedure for the IDEAL SORT. Statements were sorted this time from the point of view of how the subjects would ideally like to be. The yellow answer sheet was used for recording the IDEAL SORT.

All subjects in both classes were present for the initial test administration and the testing was completed within the class period.

At the completion of eleven weeks of activity and instruction within the two experimental classes, subjects were scheduled for the second and final test administration. This was conducted during the twenty-fourth scheduled class meeting for both classes and the procedures for Q-sorting were the same as for the initial test.

Only twenty-four subjects in each class completed the second test. The five students dropped from the

traditionally oriented class included four women who had withdrawn from the course or had been medically excused; and the male student. Two students in the movement education oriented class were excused because of illness which prevented them from participating in both the skills proficiency test and the final Movement Concept Test.

Scoring of the Q-sort

Because of the forced distribution requirement of Q-sort methodology, a nomograph as described by Cohen (50: 138-9) may be used to determine the correlation coefficients between the SELF SORT and the IDEAL-SELF SORT. Doudlah (72) constructed a nomograph based on a nine-point scale of seventy-five statements. This nomograph was used to determine the correlation coefficients in this study. A copy of the nomograph appears in Appendix I.

In recording the score for each individual subject on each test the investigator used the following procedure. The SELF and IDEAL-SELF SORTS for each test were recorded on the same score sheet. Results of the SELF SORT were recorded in green using the letter "S" and the IDEAL-SELF SORT was recorded in red using the letter "I". The difference between the SELF and the IDEAL-SELF score for each of the seventy-five statements was determined and recorded on the score sheet in the column headed "D". This discrepancy score was then squared, recorded in the "D²" column, and summed.

For any sum of D^2 from 0 to K the nomograph was entered from the left at the level of the D^2 sum. The value of "r" was read from the bottom (positive) scale by crossing to the diagonal line and dropping down to the lower axis. If the sum of D^2 was within the K to 2K range the nomograph was entered from the right and the value of "r" found on the top (negative) scale. These correlation coefficients were then treated as scores during the statistical procedures.

The discrepancy between the initial SELF SORT and the final SELF SORT was recorded in the same way, as was the discrepancy between the IDEAL SORT from the first to the second testing. Correlation coefficients were determined for these scores by use of the nomograph. A copy of all correlation coefficients appears in Appendix G.

Methods of Instruction

The objectives and content of the two experimental gymnastics courses were determined jointly by the two instructors. A common list of proficiencies and knowledges, based on general movement principles, was compiled to act as a guide in the construction of course outlines. This list reflected a synthesis of the objectives suggested both by the advocates of the traditional approach and by those who favored the problem-solving approach, as found in the literature.

The following objectives, stated in generalities, were interpreted by each instructor in terms of activities

and understandings pertinent to the teaching methodology.

No one item had priority.

1. Kinesthetic awareness
2. Flexibility
3. Strength
4. Control of muscular tension
5. Coordination
6. Agility
7. Ability to move with, or support weight of, another person
8. Ability to utilize concepts of space, time, and flow

Movement Education Approach. A series of themes was determined for the course. These included locomotion, balance, transference of weight, supporting of weight and counterbalance, stability, rhythm and continuity, flexion, extension, and torsion. The elements of time, weight, space and flow were introduced as secondary themes within each lesson. Students worked both on the floor and on the apparatus, individually and with others, with and without small equipment. A copy of the lesson plans appears in Appendix C.

Movement problems were presented to the students with a minimum of direction by the instructor. The students were given the opportunity to find their own solutions to the movement problems. Emphasis was placed on the process of exploring the possible solutions, selecting those that were effective and efficient, and developing these solutions in terms of kinesiological or aesthetic criteria. Any movement pattern that satisfied the criteria of the particular task

was acceptable.

Discussion and analysis of the problem followed the initial movement exploration. Possibilities of eliminating or coping with elements which could lead to injury were raised by the instructor when the situation demanded. Observation of various student solutions and discussion of movement principles involved were included at appropriate junctures.

To ensure the inclusion of all the common objectives listed by both instructors, the investigator arranged to have the movement education lessons recorded on tape. The problem solving method, by its nature, cannot be rigidly structured to follow a predetermined lesson plan. As there are no specific stunts and apparatus skills taught by this method, progressions evolve mainly from the individual solutions to the tasks as set by the teacher. Such a system demands a flexibility in the lesson plan which could have resulted in the omission of certain specific objectives. By recording each lesson and subsequently reviewing the material covered, the instructor was able to structure the problems for the next lesson to include any concept which had been omitted.

A microphone and concave amplifier were attached to an extension arm which swivelled around a metal standard. This equipment was installed in the balcony of the gymnasium and plugged into a magnetic tape recorder. During the

experimental class period a physical education major student manipulated the microphone and amplifier on the swivel so that the statement of the movement problems and the verbal analysis and discussion could be picked up regardless of the floor position of the instructor or students.

This procedure also permitted the instructor to evaluate the integrity of her technique in terms of the problem solving method. Because this teaching method does not utilize a prescribed pattern of instructions the teacher must improvise on the basis of student response. As a result the problems may not be presented always in a manner which permits creative freedom or a variety of solutions. By recording the actual statement of the movement tasks it was possible for the instructor to assess the faults in the presentation and subsequently correct such faults, thus improving her technique.

Students were encouraged to be innovative and demanding of themselves within the structure of self-directed activity. Tasks were set which made possible the development of skill so that visible progress could be noted in terms of body management, ease of transition from one position to the next, logical progression within a sequence of movement, and appropriate application of mechanical principles discovered through movement exploration.

Traditional Approach. The course began and ended with the administration of tests for pulse rate, arm strength,

abdominal strength, hip flexibility, and endurance. Each lesson opened with teacher prescribed or student selected conditioning exercises, followed by demonstration and explanation of specific stunts and apparatus skills by the teacher. The exercises were designed to develop strength, flexibility, coordination, endurance, and agility. The stunts and apparatus skills were selected on the basis of their relevance to the fundamental objectives of the course.

Safety, and the importance of spotting, was stressed from the beginning and specific techniques were demonstrated and explained as the occasion arose throughout the course. As each new skill was introduced through teacher demonstration the entire class observed the mechanics of both the movement sequence and the spotting technique. Each student then attempted the new skill with cues from the instructor.

The class was divided into squads for each section of apparatus with the instructor either staying at one section to assist with spotting or rotating to each section to direct the activity.

Progression was based on the readiness of the majority of students to attempt a more difficult stunt or activity on the apparatus. Those students not yet capable of performing the more advanced skills were encouraged to continue at their own level and improve their form or quality of performance. The squads were periodically rearranged to allow for differences on the skill continuum.

After the initial teacher demonstration and explanation of each gymnastic skill students were asked to analyze their own difficulties, and solutions to these problems were based on the verbal interaction of the instructor and the individual student.

Two tests were administered during the course in which each student had to demonstrate proficiency, based on the criteria set by the instructor, in a list of stunts and apparatus skills delineated by the instructor. The level of proficiency was rated by the teacher on a five-point scale. Students were also given the opportunity to devise their own routines based on combinations of specific skills taught during the previous class meetings.

A copy of the lesson plans appears in Appendix D.

Evaluation of Course Objectives

The investigator had made the basic premise that over a period of eleven weeks the two experimental classes would achieve similar competencies, in terms of physical skill, regardless of teaching approach. The hypothesis was then formulated that any difference found as a result of the two different approaches to gymnastics may be expected to be in psychological attitudes rather than in skill patterns.

To test the initial premise a list of competencies which both instructors felt should be achieved by their classes was devised and submitted to an independent authority. These competencies were expressed in terms apropos to

the particular teaching method. The tasks were structured to test concepts inherent in the common objectives for both classes.

From the list six activities were selected at random and a panel of twelve judges, two to each activity, rated the skill of each student on a pass-fail basis. A copy of the test appears in Appendix E.

The test was administered to both classes during the twenty-third scheduled class meeting. The subjects were given a pack of six cards. Each card had a task indicated and each task was numbered one through six. The traditionally oriented class were presented with tasks in the form of specific stunts and activities on the apparatus. The movement education oriented class were given movement problems which involved the same concepts as the specific skills.

Six different testing stations were set up in the gymnasium with two judges at each. The same judges were used for both classes and they were responsible for the same testing station for each class. Judges were graduate physical education students. The subjects were instructed to go to any judge who was not busy and attempt the task assigned at that station. As there were several choices of movement patterns within each task the subjects were asked to announce their choice and then demonstrate it. When a student had completed the task the judge marked the student's appropriate card on a pass-fail basis and retained the card.

When the subjects had rotated to all six stations and performed the tasks the test was completed.

Supplementary Material

Although the original research design did not include a questionnaire on student reaction to teaching methods, the investigator felt that pertinent information might be elicited from an investigation of the subjective opinions of students about a method which was new to most of them.

At the conclusion of the course the movement education oriented class, which had been taught through the problem solving method, was asked to react to eight questions pertaining to different aspects of the course. The questions were used simply as a guide to structure their thoughts and the replies were either in direct response to a specific question or in the form of a general statement. A copy of the questions appears in Appendix F.

Summary

Q-sort methodology was used as a tool to measure the change in movement concept of college women enrolled in two beginning gymnastics classes differentiated as to teaching approach. A test of movement concept, as devised by Doudlah (72), was administered to the experimental classes at the beginning and at the end of an eleven week course in gymnastics. The discrepancy in the scores between the first and the second testing was treated statistically to determine if

any significant change had occurred as a result of the method-content variable.

One class was oriented towards the traditional, teacher-directed approach to gymnastics while the other was oriented towards a movement education, problem solving approach.

A proficiency test was administered to both classes at the completion of the study to determine whether there was any difference between the classes in their ability to utilize concepts presented during the gymnastics course.

The movement education oriented class were asked to complete a questionnaire on their reactions to the methodology and content of their course in the hopes of eliciting information about student attitudes to an unfamiliar teaching approach.

CHAPTER V

ANALYSIS OF DATA

It was the purpose of this study to investigate the difference between the movement concept of college women prior to their first experience in beginning gymnastics classes, differently oriented as to teaching approach, and at the completion of eleven weeks of instruction and activity within the classes. The study was structured to determine whether a teaching approach utilizing the concept of problem-solving and movement education or a teaching approach utilizing a teacher-directed and traditional gymnastics concept significantly altered the students concept of self as a physically mobile entity.

Subjects for this study were forty-eight college women enrolled in two different gymnastics classes offered by the Department of Health, Physical Education, and Recreation of the University of North Carolina at Greensboro.

Q-sorts for movement concept constructed by Doudlah (72) were completed by each of the subjects prior to the initial period of instruction in the experimental classes. The correlation coefficients between the self sort and the ideal-self sort were determined by means of the nomograph described by Cohen (50) and these correlation coefficients

were treated as individual scores throughout the statistical manipulation of the data.

After eleven weeks of activity and instruction the subjects were administered the same Movement Concept Test as devised by Doudlah (72), and correlation coefficients or movement concept scores were obtained for this second testing. Individual correlation coefficients, prior to and after class instruction, for subjects in both classes are presented in Appendix G.

A series of null hypotheses were formulated regarding the differences between classes and the differences within each class. A significant difference at the five percent level of confidence or below was considered an acceptable standard at which to reject the hypotheses.

The null hypotheses are presented here in terms of:

- a. Movement concept scores between and within classes
- b. Real-self and ideal-self scores between and within classes
- c. Proficiency test scores between classes

Fisher's "t" test of significance of difference between uncorrelated means was used to determine the difference in movement concept between classes initially and after the second test administration.

The first null hypothesis stated that:

There is no difference at the beginning of the course in the movement concept of subjects in two different

gymnastics classes.

No significant statistical difference was found between the mean score of the subjects and the hypothesis was accepted as tenable. Results of these data appear in Table I.

The second null hypothesis stated that:

At the completion of eleven weeks of activity and instruction there is no difference in the movement concept scores of subjects who have been taught through a movement education oriented approach and a traditionally oriented approach in two different gymnastics classes.

No statistically significant difference was found between the mean scores of the groups at the time of the second testing and the hypothesis was considered tenable. These results appear in Table II.

Fisher's "t" test of significance of difference between correlated means was used to determine the differences between movement concept scores on the first and second testing within the two gymnastics classes which were differently oriented as to teaching approach.

The third null hypothesis stated that:

There is no difference, with regard to movement concept scores, from the beginning to the end of an eleven week gymnastics course which utilizes the movement education approach.

The hypothesis was found untenable and was rejected

TABLE I

SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS OF INITIAL
MOVEMENT CONCEPT SCORES FOR THE MOVEMENT EDUCATION
ORIENTED CLASS AND THE TRADITIONALLY ORIENTED CLASS

Class	N	M	"t"	Level of Conf.
Movement Education	24	.3904	1.44	---
Traditional	24	.5179		

TABLE II

SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS OF FINAL
MOVEMENT CONCEPT SCORES FOR THE MOVEMENT EDUCATION
ORIENTED CLASS AND THE TRADITIONALLY ORIENTED CLASS

Class	N	M	"t"	Level of Conf.
Movement Education	24	.4941	.52	---
Traditional	24	.5396		

at the five percent level of confidence. Results of these data appear in Table III.

The fourth null hypothesis stated that:

There is no difference, with regard to movement concept scores, from the beginning to the end of an eleven week gymnastics course which utilizes the traditional approach.

The hypothesis was considered tenable since no statistically significant difference was found between scores on the first testing and those on the second testing. Results appear in Table III.

Fisher's "t" test of significance of difference between correlated means was also used to determine the change in the real-self sort and in the ideal-self sort between the first and second testing for each class. The real-self and ideal-self correlation coefficients or scores were examined in relation to a perfect correlation which would indicate no change from one test administration to the other.

The fifth null hypothesis stated that:

There is no difference with regard to change of the real-self sort, from beginning to end of an eleven week gymnastics course which utilizes the movement education approach.

The hypothesis was found to be untenable and was rejected at the one percent level of confidence. Results of these data are presented in Table IV.

The sixth null hypothesis stated that:

There is no difference with regard to change of the

TABLE III

SIGNIFICANCE OF DIFFERENCE OF MEAN CHANGE IN
MOVEMENT CONCEPT SCORES FROM INITIAL TO FINAL
TESTING WITHIN THE MOVEMENT EDUCATION ORIENTED
CLASS AND THE TRADITIONALLY ORIENTED CLASS

Class	N	\bar{D}	"t"	Level of Conf.
Movement Education	24	.1037	2.17	5%
Traditional	24	.0218	.53	--

real-self sort from beginning to end of an eleven week gymnastics course which utilizes the traditional approach.

The hypothesis was found to be untenable and was rejected at the one percent level of confidence. Results of these data appear in Table IV.

The seventh null hypothesis stated that:

There is no difference with regard to change of the ideal-self sort from the beginning to the end of an eleven week gymnastics course which utilizes the movement education approach.

The hypothesis was found to be untenable and was rejected at the one percent level of confidence. Results of these data are presented in Table V.

The eighth null hypothesis stated that:

There is no difference with regard to change of ideal-self sort from beginning to end of an eleven week gymnastics course which utilizes the traditional approach.

The hypothesis was found to be untenable and was rejected at the one percent level of confidence. Results appear in Table V.

Fisher's "t" test of significance of difference between uncorrelated means was used to determine the difference in real-self and ideal-self change between classes.

The ninth null hypothesis stated that:

There is no difference with regard to change of real-self sort between gymnastics classes taught through the

TABLE IV

SIGNIFICANCE OF DIFFERENCE OF MEAN CHANGE IN REAL-SELF SCORES AFTER FINAL TESTING WHEN COMPARED TO NO CHANGE, WITHIN THE MOVEMENT EDUCATION ORIENTED CLASS AND THE TRADITIONALLY ORIENTED CLASS

Class	N	\bar{D}	"t"	Level of Conf.
Movement Education	24	.6581	22.77	1%
Tradition	24	.6978	24.14	1%

TABLE V

SIGNIFICANCE OF DIFFERENCE OF MEAN CHANGE IN IDEAL-SELF SCORES AFTER FINAL TESTING WHEN COMPARED TO NO CHANGE, WITHIN THE MOVEMENT EDUCATION ORIENTED CLASS AND THE TRADITIONALLY ORIENTED CLASS

Class	N	\bar{D}	"t"	Level of Conf.
Movement Education	24	.7441	32.07	1%
Traditional	24	.7400	31.49	1%

movement education approach as compared to the traditional approach.

The hypothesis was considered tenable. No statistically significant difference was found in the amount of change in real-self sort between classes. Results appear in Table VI.

The tenth null hypothesis stated that:

There is no difference with regard to change of the ideal-self sort between gymnastics classes taught through the movement education approach as compared to the traditional approach.

No significant statistical difference was found in the amount of change in the ideal-self sort between classes and the hypothesis was accepted as tenable. Results appear in Table VII.

Fisher's "t" test of significance of difference between correlated means was used to determine the difference between the real-self and ideal-self change within each class.

The eleventh null hypothesis stated that:

There is no difference between the change in the real-self and the change in the ideal-self in a gymnastics class taught through the movement education approach.

The hypothesis was rejected as untenable at the one percent level of confidence. Results appear in Table VIII.

The twelfth null hypothesis stated that:

TABLE VI

SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS OF REAL-SELF
SCORES FOR THE MOVEMENT EDUCATION ORIENTED CLASS AND
THE TRADITIONALLY ORIENTED CLASS

Class	N	M	"t"	Level of Conf.
Movement Education	24	.6581	1.02	--
Traditional	24	.6978		

TABLE VII

SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS OF IDEAL-SELF
SCORES FOR THE MOVEMENT EDUCATION ORIENTED CLASS AND
THE TRADITIONALLY ORIENTED CLASS

Class	N	M	"t"	Level of Conf.
Movement Education	24	.7441	.12	--
Traditional	24	.7400		

There is no difference between the change in the real-self and the change in the ideal-self in a gymnastics class taught through the traditional approach.

No statistically significant difference was found between the amount of change in the real-self sort and the amount of change in the ideal-self sort. The hypothesis was accepted as tenable. Results appear in Table VIII.

Fisher's "t" test of significance of difference between uncorrelated means was used to determine the difference in gymnastics proficiency test scores between classes.

The thirteenth null hypothesis stated that:

At the completion of eleven weeks of activity and instruction there is no difference in the proficiency test scores of subjects who have been taught gymnastics through two different teaching approaches.

The hypothesis was considered tenable. No statistically significant difference was found in the proficiency test scores between the classes. Results of these data are presented in Table IX.

It should be reemphasized that the correlation coefficients determined through the Q-sort were treated as individual scores. This involved taking license with the integrity of the correlation coefficients but seemed justified in terms of the peculiarity of the measurement index. Thus, the special properties of correlation coefficients were lost when they were treated as an assumed normal distribution of raw scores.

TABLE VIII

SIGNIFICANCE OF DIFFERENCE OF MEAN CHANGES BETWEEN
REAL-SELF AND IDEAL-SELF WITHIN THE MOVEMENT EDUCATION
ORIENTED CLASS AND THE TRADITIONALLY ORIENTED CLASS

Class	N	\bar{D}	"t"	Level of Conf.
Movement Education	24	.084	3.21	1%
Traditional	24	.042	1.78	--

TABLE IX

SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS OF PROFICIENCY TEST SCORES FOR THE MOVEMENT EDUCATION ORIENTED CLASS AND THE TRADITIONALLY ORIENTED CLASS AT THE COMPLETION OF THE COURSE

Class	N	M	"t"	Level of Conf.
Movement Education	24	7.58	.22	--
Traditional	24	7.54		

CHAPTER VI

INTERPRETATION OF DATA

When considered in relation to each other the results of the statistical procedures showed a trend which may indicate certain directional patterns.

This study was concerned with the effect of a method-content variable on the movement concept of women students enrolled in two gymnastics classes differently oriented as to teaching approach. From the data this variable would seem to have influenced both the degree of change in total movement concept and the directional change in the real-self and ideal-self components of movement concept.

Fisher's "t" test of significance of difference between uncorrelated means showed that the classes were statistically equated at the beginning and at the end of the study, but that within each class there was a difference in amount of change in movement concept. The movement education oriented class showed a statistically significant change in movement concept scores at the end of the course while the traditionally oriented class showed no change.

The fact that the classes were alike in their movement concept at the beginning of the course might have been anticipated. Students selecting gymnastics in an elective

program might be expected to be similar in their initial concept of themselves in movement. The type of activity normally offered in a course so listed could attract students who did not differ greatly with regard to movement concept.

The testing results indicated that although the difference in movement concept between the classes was not statistically significant at either the beginning or the end of the study, the total difference from beginning to end between the movement education oriented class and the traditionally oriented class was large enough to be significant at the five percent level of confidence. This would suggest that in the movement education oriented class the subjects saw themselves much more favorably in terms of their ideal-self in movement at the completion of the course. The subjects in the traditionally oriented class saw themselves only slightly more like their ideal-self at the second testing.

The fact that one group changed significantly more than the other suggests that the controlled variable of method-content could be responsible for the degree of re-evaluation and the direction of change. To determine whether this variable had influenced the movement concept by changing the real-self component, the ideal-self component, or both, Fisher's "t" test of significance of difference between correlated means was used to evaluate both groups. A

significant statistical change in both the real-self and ideal-self was found within each class, indicating that after eleven weeks of instruction and activity there was a difference both in how subjects realistically viewed themselves and in how they ideally wanted to be. These results suggest that participation in either type of class may induce subjects to reevaluate their real-self in relation to their changed ideal-self.

However the significant statistical change in total movement concept within the gymnastics class taught through the movement education approach seems to indicate that a methodology and course content which stress individual discovery of solutions to movement problems permit the subject to broaden her movement experience, thereby extending her knowledge of the skill continuum and giving her more scope for change in concept.

In comparing the mean correlation scores at the time of the initial test it may be seen that the traditionally oriented class had a narrower discrepancy between real-self and ideal-self than did the movement education oriented class, although the difference was not statistically significant. This could hint that the subjects in the traditionally oriented class were more like their ideal self than were the movement education oriented class at the beginning of the study.

If the mean correlation scores of the second test are

compared it can be seen that the subjects in the traditionally oriented class and those in the movement education oriented class demonstrate a narrowing of the discrepancy between the real-self and the ideal-self. From this it may be concluded that both approaches within the differently oriented gymnastics classes resulted in the maintenance and enhancement of the subjects feeling of adequacy in a movement situation.

When the mean difference between the first and the second correlation scores for each class is examined however it may be observed that there is a significant statistical change within the movement education oriented class. This may be interpreted to mean that the real-self and ideal-self discrepancy within that class narrowed significantly more than within the traditionally oriented class, thereby implying that the subjects in the former class felt significantly more satisfied with the way they moved in relation to their ideal. There is also the possibility that the subjects aspirations changed and that they were satisfied, consequently, with a more realistically attainable ideal.

The relevant data were considered in terms of difference between the amount of change in the real-self and the ideal-self. Both the real-self and the ideal-self showed statistically significant change within each class when looked at in relation to a score of zero. This would indicate that in comparison to no change

there was a difference in both real-self and ideal-self from one test to the other. No difference was found however when comparing the amount of change in both sorts between classes.

This may be taken to imply that within both classes there was considerable fluctuation in the subjects concepts of the ideal and where they rated themselves in relation to that ideal. From this it may be assumed that both courses presented the students with situations which caused a marked revision of how they would like to move and how closely they approximated that ideal.

In looking at the mean difference between the two sorts it can be noted that the real-self' changed more than the ideal-self within each class. To determine the statistical significance of this difference Fisher's "t" test of correlated means was computed for each class and the results showed that the difference between the real-self and ideal-self change within the movement education oriented class was significantly greater statistically at the one percent level of confidence, than that within the traditionally oriented class.

This would suggest that the method-content variable within the movement education oriented class could have caused a significantly greater change in the real-self component of movement concept than in the ideal-self component. Within the traditionally oriented class, however, the variable could have been responsible for producing comparable change in both of the movement concept components.

An examination of the difference between the mean raw scores on the proficiency test revealed that the two classes were statistically equated, in terms of tested skill patterns, at the completion of the study. These results tend to support the basic premise governing the research design that the two experimental classes would achieve similar competencies regardless of teaching approach.

Throughout the study the statistical data indicated that the movement education oriented class showed a greater degree of change between scores and within scores than did the traditionally oriented class. This would seem to indicate that broad general conclusions could be drawn as to the comparable effects of a problem solving, movement education structured course and a teacher-directed, traditionally structured course on the educative process.

The more freedom a student is given to discover her own movement potential and the more opportunity she is given to contribute creatively to a group project, the less she is likely to set her goals arbitrarily and the less she is prone to judge herself in terms of one predetermined correct response. This may well influence the standards which she sets for herself, both ideally and realistically, and lead to a feeling of adequacy and satisfaction in movement situations.

The data gathered from the questionnaire administered to the movement education class helped to interpret and explain the change in the subjects concept of themselves in

movement. The majority of students indicated an involvement, both physical and intellectual, which may have substantially influenced the degree of concept change. From the literature it has been noted that ego-involvement plays a significant role in concept formation and the problem solving, movement education approach would seem to foster such involvement.

Many students expressed satisfaction and a feeling of challenge in being given the opportunity to create their own movement patterns in response to a physical problem set by the teacher. Several mentioned that they had discovered that they could do more demanding sequences of movement than they had believed themselves capable of performing.

Partner and group work seemed popular and the chance for physical and intellectual interaction with others was a facet of the course which elicited many favorable responses.

The aspects least liked were the work with small apparatus and the initial individual exploration on the mats. Two explanations presented themselves when the responses to the questionnaire were examined. First, the small equipment such as balls, hoops, and jump ropes, was reminiscent of elementary activities which seemed embarrassing to many of the students. Secondly, the condition of the mats was such that the students disliked getting their uniforms dirty and creased. It may well be that the age range of the experimental subjects affected their view of these facets of the course and that younger subjects could have reacted in a

different way.

In conclusion it would appear that the movement education, problem solving approach motivates and challenges students. Success is attainable by everyone and failure is more in terms of poor analysis of the problem than in physical incompetence. With the elimination of conformity to prescribed learning patterns and predetermined movement skills seems to come a greater awareness of each students potential range of performance. This in turn appears to affect the concept of what the ideal should be and how an individual may relate to that ideal.

No conclusion can be drawn as to the views of the members of the traditional class about teaching method as no information was elicited from them with regard to their reactions.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The purpose of this study was to investigate the effect of a movement education, problem-solving approach to teaching gymnastics as opposed to the traditional, teacher-directed approach, on the movement concept of college women following eleven weeks of instruction and activity in beginning gymnastics.

Subjects were forty-eight freshmen and sophomore women enrolled in two beginning gymnastics classes at the University of North Carolina at Greensboro. Each experimental class was taught by a different instructor experienced in and committed to her particular approach. The objectives of each course were similar.

The Q-sort technique was selected as the tool most pertinent to a study of the effect of physical education on movement concept. This technique eliminated the imposition of external values and allowed each subject to evaluate the statements within her own frame of reference.

A set of seventy-five statements, as devised by Doudlah (72) was used for testing. The initial Q-sorting of the movement concept statements was completed by the subjects prior to their first instructional class, and the final

testing was conducted at the completion of eleven weeks of course work. Individual correlation coefficients between the self and the ideal-self for both the first and the second testing were calculated by means of a nomograph. Correlation coefficients between initial and final self sorts and ideal-self sorts were similarly obtained.

The data were treated statistically to determine if there was a difference in movement concept between the classes at the beginning and at the end of the study, to determine if changes in movement concept occurred within the two classes from the beginning of the study to the end, to determine both the direction and the amount of change of the self and the ideal-self components of movement concept, and to determine if there was a difference between the classes in the proficiencies acquired by the end of the experimental period.

A series of null hypotheses were formulated regarding differences between and within classes, and Fisher's "t" tests for the significance between both correlated and uncorrelated means were the statistical methods used for treating the data.

The following results were obtained:

1. There was no significant statistical difference between the classes in movement concept either at the beginning or at the conclusion of the study.
2. There was a difference, significant statistically

at the five percent level of confidence, between the initial and the final movement concept scores for the movement education oriented class.

3. There was no significant statistical difference between the initial and the final movement concept scores for the traditionally oriented class.

4. There was a change, statistically significant at the one percent level of confidence, in both the real-self and the ideal-self from beginning to end within each class.

5. There was no significant statistical difference between the two classes in amount of change in the self and ideal-self components of movement concept from beginning to end.

6. There was a difference, statistically significant at the one percent level of confidence, between the amount of change in self and ideal-self within the movement education oriented class.

7. There was no significant statistical difference between the amount of change in self and ideal-self within the traditionally oriented class.

8. There was no significant statistical difference between the classes in the proficiency test scores at the completion of the study.

On the basis of the statistical results the following conclusions and implications were drawn:

1. The movement education approach to gymnastics

results in a narrowing of the discrepancy between the self and the ideal-self.

2. Both the movement education approach and the traditional approach to gymnastics result in the subject's re-evaluation of the ideal-movement concept and the reassessment of the real-self in relation to the changed ideal.

3. The movement education approach appears to affect the real-self component of movement concept more than the ideal-self component. This suggests that such an approach enhances a student's feelings of adequacy and satisfaction when measured in terms of her ideal.

4. The method-content variable in a traditionally oriented gymnastics course and a movement education oriented gymnastics course results in the acquisition of similar competencies with regard to skill patterns over an eleven week period.

5. A concomitant of the movement education approach seems to be the reported satisfaction which students derive from the creative process of problem solving. The total involvement of the student seems to induce confidence in her ability to succeed in a movement task.

Clifton and Smith have suggested that the concept an individual has of himself in movement is strongly related to his ability to learn motor skills, and that if that concept can be changed by some method, it may encourage and promote the acquisition of skill. (49) The movement education

approach to gymnastics appears to ameliorate a student's concept of herself as a moving human entity and in doing so may well facilitate the learning process in terms of physical skill patterns.

Critique and Suggestions for Further Study

The investigator feels that one of the inherent problems of utilizing the Doudlah Movement Concept Test is the fact that the subjects are asked to analyze their concept of themselves in movement predominantly in terms of structured physical education activities, including sports, or situations involving body mechanics. If these movement patterns are not included in the experimental situation there is less possibility of a change occurring in the subjects concept of themselves with regard to that pattern. Inclusion of broader general concepts of movement may well elicit responses which are indicative of a more comprehensive analysis of how a subject sees himself in a physical situation. However it was felt that had the investigator attempted to construct a test for this particular study an unintentional bias in favor of the philosophy of one methodology might have been manifested.

Another aspect of the research design which limits the scope of this study is the teacher personality variable. The decision to use two different instructors rather than have one instructor utilize both approaches was based on the rationale that the teacher's experience in and commitment to

one particular approach was more likely to result in a set conducive to learning than the contrived situation of one teacher attempting to use both approaches without bias. The rapport between instructor and class however was an unpredictable factor and any difference between the classes in the student-teacher relationship may have influenced the degree of change in movement concept.

As the subjects for this study were not a random sample the data obtained from the study are applicable only within the limitations of the research design.

In view of the implications inferred from this study the following aspects of movement concept might warrant further investigation:

1. A follow up of subjects who have participated in a movement education oriented gymnastics class to determine whether the effects of that approach on movement concept affect the attitude towards or the acquisition of skill in other activities.

2. A study of movement concept when groups are initially equated in terms of both skill and movement concept, with the same instructor teaching both classes.

3. A study of the effects of other variables such as length of instructional unit, motor ability, age range, on the movement concept of students in a movement education oriented gymnastics class.

4. A study of the relationship between movement

concept and body-image, or movement concept and self concept, in a movement education oriented gymnastics class.

5. A comparison of the effects of a movement education approach on the movement concept of subjects in a beginning gymnastics class and subjects in an advanced gymnastics class.

BIBLIOGRAPHY

A. BURNS

1. American Association for Health, Physical Education, and Recreation. Developing Democratic Human Relationships. Washington, D.C.: American Association for Health, Physical Education, and Recreation, 1951. 252 pp.
2. Association for Supervision and Curriculum Development. Teaching, Learning, Encouraging: A New Focus for Education. Yearbook 1962. Washington, D.C.: Association for Supervision and Curriculum Development, 1962. 254 pp.
3. Barrett, Edith. A Method for Teaching Grammar. Boston: College Writing and Typing Co., Inc., 1945. 57 pp.
4. Baxby, James A. Grammar in the Schools. Boston: Allyn and Bacon, Inc., 1959. 291 pp.
5. Bogan, Morris J. Learning Theories for Teachers. New York: Harper and Row, 1964. 206 pp.
6. Brakaten, Mill. Principles of Grammar for English and Latin. London: J. A. Churchill Ltd., 1937. 263 pp.
7. Brown, Marion S. Efficiency of Speech Movement. Philadelphia: W. B. Saunders Company, 1940. 121 pp.
8. Brooker, Wilbur S., Ann Peterson, and Shailer Thomas. Self-Concept of Ability and School Achievement: What Learning. Michigan: Office of Research and Publications, Michigan State University, 1962. 105 pp.
9. Brown, Cecile and Elizabeth Cecile. Theory in Physical Education: A Guide to Progress Study. Philadelphia: Lea & Febiger, 1963. 204 pp.
10. Brownell, Clifford and E. Fairbairn Hanson. Physical Education: Methods and Principles. New York: McGraw-Hill Book Company, Inc., 1954. 397 pp.

BIBLIOGRAPHY

A. BOOKS

1. American Association for Health, Physical Education, and Recreation. Developing Democratic Human Relations. Washington, D.C.: American Association for Health, Physical Education, and Recreation, 1951. 562 pp.
2. Association for Supervision and Curriculum Development. Perceiving, Behaving, Becoming: A New Focus for Education. Yearbook 1962. Washington, D.C.: Association for Supervision and Curriculum Development, 1962. 256 pp.
3. Barrett, Kate R. Exploration: A Method for Teaching Movement. Madison: College Printing and Typing Co., Inc., 1965. 57 pp.
4. Bayley, James A. Gymnastics in the Schools. Boston: Allyn and Bacon, Inc., 1965. 297 pp.
5. Bigge, Morris L. Learning Theories for Teachers. New York: Harper and Row, 1964. 366 pp.
6. Bjorksten, Elli. Principles of Gymnastics for Women and Girls. London: J. A. Churchill Ltd., 1937. 603 pp.
7. Broer, Marion R. Efficiency of Human Movement. Philadelphia: W. B. Saunders Company, 1960. 351 pp.
8. Brookover, Wilbur B., Ann Paterson, and Shailer Thomas. Self-Concept of Ability and School Achievement. East Lansing, Michigan: Office of Research and Publications, Michigan State University, 1962. 105 pp.
9. Brown, Camille and Rosalind Cassidy. Theory in Physical Education: A Guide to Program Change. Philadelphia: Lea & Febiger, 1963. 244 pp.
10. Brownell, Clifford and E. Patricia Hagman. Physical Education-Foundations and Principles. New York: McGraw-Hill Book Company, Inc., 1951. 397 pp.

11. Bruner, Jerome S. The Process of Education. Cambridge: Harvard University Press, 1960. 97 pp.
12. Bukh, Niels. Fundamental Gymnastics. New York: E. P. Dutton and Company, 1928. 202 pp.
13. Carlquist, Maja. Rhythmical Gymnastics. London: Methuen and Company, 1955. 186 pp.
14. Combs, Arthur W. and Donald Snygg. Individual Behavior: A Perceptual Approach to Behavior. New York: Harper and Brothers, 1959. 522 pp.
15. Cratty, Bryant J. Movement Behavior and Motor Learning. Philadelphia: Lea and Febiger, 1962. 332 pp.
16. Davis, Elwood C. and John D. Lawther. Successful Teaching in Physical Education. New York: Prentice-Hall, 1941. 665 pp.
17. Division for Girls and Women's Sports. Gymnastics Guide, June 1963-June 1965. Washington, D.C.: American Association for Health, Physical Education, and Recreation, 1963. 112 pp.
18. Fisher, Seymour and Sidney E. Cleveland. Body Image and Personality. Princeton, New Jersey: D. Van Nostrand Co., Inc., 1958. 420 pp.
19. Halsey, Elizabeth. Inquiry and Invention in Physical Education. Philadelphia: Lea and Febiger, 1962. 119 pp.
20. Halsey, Elizabeth and Lorena Porter. Physical Education for Children: A Developmental Program. New York: Henry Holt and Co., Inc., 1958. 416 pp.
21. Hetherington, Clark W. School Program in Physical Education. New York: World Book Company, 1922. 132 pp.
22. Hudgins, Bryce B. Problem Solving in the Classroom. New York: Macmillan Company, 1966. 74 pp.
23. Hughes, Eric. Gymnastics for Girls. New York: The Ronald Press Co., 1963. 268 pp.
24. Jersild, Arthur T. In Search of Self. New York: Bureau of Publications, Teachers College, Columbia University, 1952. 141 pp.

25. _____, and Ruth J. Tasch. Children's Interests and What They Suggest for Education. New York: Bureau of Publications, Teachers College, Columbia University, 1949. 173 pp.
26. Knapp, Clyde G. and E. Patricia Hagman. Teaching Methods in Physical Education. New York: McGraw-Hill, 1953. 386 pp.
27. Kozman, Hilda C., Rosalind Cassidy, and Chester O. Jackson. Methods in Physical Education. Philadelphia: W. B. Saunders Company, 1947. 552 pp.
28. Knudsen, Knud A. A Text-Book of Gymnastics. Philadelphia: J. B. Lippincott Co., 1920. 347 pp.
29. Lecky, Prescott. Self-Consistency: A Theory of Personality. New York: Island Press, 1945. 154 pp.
30. Loken, Newton C. and R. J. Willoughby. Complete Book of Gymnastics. Englewood Cliffs, New Jersey: Prentice-Hall, 1959. 212 pp.
31. Mauldon, E. and J. Layson. Teaching Gymnastics. London: Macdonald and Evans Ltd., 1965. 192 pp.
32. Metheny, Eleanor. Connotations of Movement in Sport and Dance. Dubuque, Iowa: Wm. C. Brown Co., Publishers, 1965. 229 pp.
33. Morison, Ruth. Educational Gymnastics for Secondary Schools. Liverpool: Speirs and Gledsdale Ltd., 1960. 47 pp.
34. Mosston, Muska. Teaching Physical Education. Columbus, Ohio: Charles E. Merrill Books Inc., 1966. 238 pp.
35. Munrow, A. D. Pure and Applied Gymnastics. London: Edward Arnold (Publishers) Ltd., 1963. 287 pp.
36. National Association for Physical Education of College Women. Purposeful Action. Workshop Report. Washington, D.C.: National Association for Physical Education of College Women, 1956. 122 pp.
37. Randall, Marjorie. Basic Movement: A New Approach to Gymnastics. London: G. Bell and Sons, Ltd., 1961. 105 pp.
38. Randall, Martin and W. K. Waine. Objectives of the Physical Education Lesson. London: G. Bell and Sons, Ltd., 1963. 181 pp.

39. Rogers, C. R. and Rosalind F. Dymond. (eds.) Psychotherapy and Personality Change. Chicago: University of Chicago Press, 1954. 446 pp.
40. Schilder, Paul. The Image and Appearance of the Human Body. New York: International Universities Press, Inc., 1950. 353 pp.
41. Skarstrom, William. Gymnastic Teaching. Second Revised Edition. Springfield, Massachusetts: American Physical Education Association, 1921. 334 pp.
42. Stephenson, William. The Study of Behavior: Q Technique and Its Methodology. Chicago: The University of Chicago Press, 1953. 376 pp.
43. Williams, J. F., J. Dambach, and N. Schwendener. Methods in Physical Education. Philadelphia: W. B. Saunders, 1938. 277 pp.
44. Wood, Thomas D. and Rosalind Cassidy. The New Physical Education. New York: The Macmillan Company, 1927. 457 pp.
45. Wylie, Ruth C. The Self Concept. Lincoln: University of Nebraska Press, 1961. 360 pp.

B. PERIODICALS

46. Bloom, Benjamin. "Implications of Problem-Solving Difficulties for Instruction and Remediation." The School Review, 55:45-49, January, 1947.
47. Briggs, Frances. "Problem-Centered Approaches to Teaching." High School Journal, 46:196-204, March, 1963.
48. Bruner, Jerome S. "The Act of Discovery." Harvard Educational Review, 31:21-32, Winter, 1961.
49. Clifton, Marguerite and Hope Smith. "Viewing Oneself Performing Selected Motor Skills in Motion Pictures and its Effect upon Expressed Concept of Self in Performance." Research Quarterly, Vol. 33, 369-375, October, 1962.
50. Cohen, Jacob. "An Aid in the Computation of Correlations Based on Q Sorts." Psychological Bulletin, 54:138-139, March, 1957.

51. Combs, Arthur E. "New Horizons in the Field of Research: the Self-Concept." Educational Leadership, XV:315-317,319,329, February, 1958.
52. Craig, Robert C. "Directed vs. Independent Discovery of Established Relations." Journal of Educational Psychology, 47:223-224, April, 1956.
53. Deach, Dorothy. "The Challenge of Movement Education." The Physical Educator, 18:92-93, October, 1961.
54. Gross, Richard. "Problem Solving: What It Isn't and What It Is." California Journal of Secondary Education, 31:108:112, February, 1956.
55. _____, and Frederick McDonald. "Classroom Methods: the Problem Solving Approach." Phi Delta Kappan, 39:259-265, March, 1958.
56. Hermanowicz, Henry J. "Problem Solving as a Teaching Method." Education Digest, 26:25-27, May, 1961.
57. Hudgins, Bryce B. "The Effects of Group Experience on Individual Problem Solving." Journal of Educational Psychology, 51:37-42, February, 1960.
58. Hunt, Valerie and Mary Ellen Weber. "The Body Image Projective Test." Journal of Projective Techniques, 24:3-10, March, 1960.
59. Jervis, Frederick. "The Meaning of a Positive Self-Concept." Journal of Clinical Psychology, 15:370-373, October, 1959.
60. Klugman, Samuel F. "Cooperative Versus Individual Sufficiency in Problem Solving." Journal of Educational Psychology, 35:91-100, February, 1944.
61. Nahinsky, Irwin D. "The Relationship Between the Self Concept and the Ideal-Self Concept as a Measure of Adjustment." Journal of Clinical Psychology, 14:360-364, October, 1958.
62. Owen, John E. "Self-Image and the Challenge of Unrealized Talent." Kappa Delta Pi Record, 2:25-26, October, 1965.
63. Perkins, Hugh V. "Factors Influencing Change in Children's Self-Concepts." Child Development, 29:221-230, June, 1958.

64. Ray, Willis E. "Pupil Discovery vs. Direct Instruction." Journal of Experimental Education, 29:271-280, March, 1961.
65. Roth, Robert M. "The Role of Self-Concept in Achievement." Journal of Experimental Education, 27:265-281, June, 1959.
66. Schultz, Rudolph. "Problem Solving Behavior and Transfer." Harvard Educational Review, 30:61-77, Winter, 1960.
67. Secord, Paul F. and Sidney M. Jourard. "The Appraisal of Body-Cathexis: Body-Cathexis and the Self." Journal of Consulting Psychology, 17:343-347, October, 1953.
68. Staines, J. W. "Self-Picture as a Factor in the Classroom." British Journal of Educational Psychology, 28:97-111, June, 1956.
69. Tillotson, Joan. "Seven Steps of Movement Exploration." State Journal of the Iowa Association for Health, Physical Education, and Recreation, Winter Issue, 1961.
70. Wickstrom, Ralph L. "Comparative Study of Methodologies for Teaching Gymnastics and Tumbling Stunts." Research Quarterly, 29:109-115, March, 1958.
71. Zion, Leela C. "Body Concept as it Relates to Self Concept." Research Quarterly, 36:490-495, December, 1965.

C. UNPUBLISHED MATERIALS

72. Doudlah, Anna May. "The Relationship Between the Self-Concept, the Body Image and the Movement Concept of College Freshmen Women with Low and Average Motor Ability." Unpublished Master's thesis, The Woman's College of the University of North Carolina, Greensboro, North Carolina, 1962.
73. Elbaum, Isabel H. "Body Image and Motor Development." Unpublished Master's thesis, The University of California at Los Angeles, 1964.
74. Garland, Iris L. "Effectiveness of Problem Solving Method in Learning Swimming." Unpublished Master's thesis, The University of California at Los Angeles, 1960.

75. Halverson, Lolas E. "Movement Education and the Elementary School Child." Paper presented to Midwest Association of Physical Education for College Women, Wisconsin, May, 1960.
76. Herod, Joyzelle. "Implications for Physical Education from the Body Image Concept." Unpublished Master's thesis, The University of California at Los Angeles, 1961.
77. La Plante, Marilyn. "A Study of the Problem-Solving Method of Teaching Bowling." Unpublished Master's thesis, The University of North Carolina at Greensboro, 1965.
78. Mathes, Sharon A. "Body Image and Performance." Unpublished Master's thesis, The University of California at Los Angeles, 1965.
79. McBee, Dorothy C. "Self-Conceptualization in Movement." Unpublished Master's thesis, The University of California at Los Angeles, 1962.
80. Nation, Edna E. "The Effect of Physical Education Instruction upon Movement Concept." Unpublished Master's thesis, The University of North Carolina at Greensboro, 1963.
81. Smith, Marilyn E. "A Study of Two Methods of Teaching Beginning Bowling to College Women." Unpublished Master's thesis, The University of North Carolina at Greensboro, 1966.
82. Tillotson, Joan. Unpublished notes for a workshop presented at The University of North Carolina at Greensboro, March, 1964.
83. Whitaker, Patricia H. "A Comparative Study of Teaching Methods in Physical Education." Unpublished Doctoral Dissertation, The University of Southern California, Los Angeles, 1954.
84. Zeigler, Yvonne P. "A Comparison of Two Methods of Teaching Gymnastics." Unpublished Master's thesis, The University of Wisconsin, 1965.

APPENDIX

1. The first part of the report is devoted to a general description of the work done during the year. It is divided into two main sections, the first of which deals with the work done in the laboratory and the second with the work done in the field.

2. In the first section, the work done in the laboratory is described. This work was carried out in the laboratory of the Department of Physics, University of Cambridge, and was supervised by Professor J. H. Poynting. The work was carried out in the laboratory of the Department of Physics, University of Cambridge, and was supervised by Professor J. H. Poynting.

3. The second section of the report deals with the work done in the field. This work was carried out in the field of the Department of Physics, University of Cambridge, and was supervised by Professor J. H. Poynting. The work was carried out in the field of the Department of Physics, University of Cambridge, and was supervised by Professor J. H. Poynting.

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APPENDIX A

Q-SORT STATEMENTS
MOVEMENT-CONCEPT

1. I am able to push a heavy object (like a piano) without difficulty.
2. My movements are described as slow.
3. Hanging by my arms is difficult for me.
4. I cannot keep up with the class when we do sit-ups.
5. Fine movements (like typing) are difficult for me.
6. Modern dance scares me.
7. I have difficulty getting my arms and legs to work together when I swim.
8. I like to move to music.
9. I take average size steps when I walk.
10. I have difficulty with balance when standing on one leg.
11. I doubt my ability to make baskets when playing basketball.
12. I feel discouraged about my physical ability.
13. I like to do stretching type exercises.
14. I try to get out of physical activity.
15. I have stiff joints.
16. Physical activity has always been important to me.
17. I feel hopeless when playing a game.
18. I am afraid to swim in deep water.
19. I fatigue easily.
20. I judge my physical performance by the best players in the class.
21. I can move as well as anyone.
22. I feel adequate when playing volleyball.
23. I really don't move well.
24. Sports scare me.
25. I feel confident about being able to learn new physical activities.
26. I feel embarrassed when doing exercises.
27. I am able to do heavy physical work.
28. I prefer doing things with my hands.
29. I like difficult physical tasks.
30. Jumping is no problem for me.
31. Physical fitness is unimportant to me.
32. I learn physical skills easily.
33. I throw a ball with accuracy.
34. I am able to meet the physical demands of everyday living.
35. I can be described as an energetic person.
36. I like to do big sweeping movements.
37. I usually use the handrail when going down the stairs.
38. I have difficulty climbing up a rope.
39. I stumble a lot when walking.

40. I have no difficulty carrying a wooden chair.
41. I like to do flowing kinds of movements.
42. I have difficulty with exercises which require me to move my arms and legs at the same time.
43. I like to swim.
44. I have fun playing on a team.
45. I like people who are active.
46. I make strong physical demands on myself.
47. I feel good when I move.
48. I am usually not able to do as well as others on the team.
49. I am physically fit.
50. I am easily discouraged when learning new movements.
51. I have difficulty catching large objects.
52. I can bounce a ball with ease.
53. I am interested in knowing how I perform physically.
54. I am really a good player.
55. I drop things.
56. I have trouble remembering dance steps.
57. I feel awkward when carrying large objects.
58. I perform best when doing small coordinated movements.
59. I like sports when I play against one other person.
60. I usually lose at sports.
61. I bowl with ease.
62. Controlling the ball in bowling is no problem for me.
63. I am a good swimmer.
64. I am afraid of falling.
65. My movements are inhibited.
66. I am average in physical skill.
67. I like to do hard physical work.
68. I like to be active.
69. I frequently bump into things.
70. My movements are brisk and sharp.
71. I have no difficulty keeping time with the music when I dance.
72. I feel helpless when faced with a physical task.
73. I have always been proud of my physical ability.
74. Physical activity bothers me. I would rather do something else.
75. I am well coordinated.

APPENDIX B

INSTRUCTION SHEET

You have a packet of 75 statements
a packet of 9 numeral cards
2 answer sheets, a White sheet for the Self-sort
a Yellow sheet for the Ideal-sort

From the packet of 75 statements select those which are LEAST like you, from the point of view of how you see yourself at this exact moment in time. Place these in a pile to your LEFT. Then select the statements which are MOST like you and place these in a pile on your RIGHT. Statements which do not fall directly into either category should be placed in a center pile.

Place the numeral cards, 1 through 9, as column headings. The numbers in parentheses under the main numeral indicate how many statements are to be placed in that column. You must place the exact number of statements in each column.

Statements which are LEAST like you will be placed toward the number 1 side. Statements which are MOST like you will be placed toward the number 9 side.

From pile on your LEFT select the two (2) statements LEAST like you and place in column 1. Select the next five (5) statements LEAST like you and place in column 2, and so on until columns 1 through 4 are completed. Complete columns 9 through 6 in the same way using the pile to your RIGHT and

selecting the statements MOST like you. All remaining statements should be placed in column 5.

When all columns are filled with the correct number of statements record the number printed on each statement on the WHITE answer sheet. You have now completed the SELF-SORT.

Repeat the same process for the IDEAL-SORT by sorting the statements from the point of view of how you would ideally like to be and recording the numbers on the YELLOW answer sheet.

CHECK THAT YOUR NAME, CLASS AND THE DATE ARE RECORDED AT THE TOP OF EACH ANSWER SHEET.

APPENDIX C

LESSON PLAN OUTLINES
(MOVEMENT EDUCATION)

- Lesson 1. Preliminary announcements. Thesis and first written test explained. Locker assignment.
- Lesson 2. Administration of Movement Concept Test.
- Lesson 3. Introduction to small equipment -- jump ropes, balls, hoops.
- Task 1. Explore range of movement possibilities equipment offers (shape, size, stationary, moving, etc.)
- Task 2. Select one piece of equipment, practice one activity discovered, be able to repeat. Each group demonstrate.
- Movement theme:- locomotion
- Task 3. Move as fast as possible about gym, avoiding obstacles.
- Task 4. Move anywhere in gym in as many different ways as possible -- utilize space (direction).
- Verbal analysis:- How did you travel?
What is going to help give elevation from floor?
What is involved in a bounce?
- Apparatus:- Identification of large apparatus and how to move it. Type of obstacle it presents.
- Review movement insight and speed.
- Lesson 4. Review small equipment ideas -- what can be done with ropes, balls, hoops?
- Task 1. Use one piece of equipment and try one idea suggested.
- Movement theme:- same as lesson 3.
- Task 2. Travel anywhere in gym taking weight only on feet.
- Analysis:- What can be varied if weight bearing part restricted?
- Task 3. Same as #2 bringing in suggestions from analysis.
- Task 4. Travel showing variety of take-offs and landings.
- Task 5. Select one pattern and vary speed and force.
- Task 6. Move quickly around obstacles (mats, hoops, chairs).
- Analysis:- What else can be done in relation to obstacle?

Task 7. Move quickly in relation to obstacle.
 Analysis:- Is there any difference in movement from #7 to #6? Why?
 What relationship between balance and motion with obstacles?

Task 8. Same as #7 bringing in suggestions from analysis.

Apparatus:- Arrange in best position with reference to use and other pieces of apparatus.

Task 9. Select one section as an obstacle and move in relation to it (over, under, on, around, through, etc.)

Review movement insight and obstacles.

Lesson 5. Review small equipment.

Task 1. Use equipment and increase the complexity of activity (speed, balance, motion, etc.)
 Movement theme:- locomotion, balance, stability.

Task 2. Run at top speed, stop as quickly as possible on signal.

Task 3. Add jump before stop.

Task 4. Add turn or twist before jump.

Analysis:- What affects ability to stop?

Task 5. Same as #2 experimenting with suggestions from analysis.

Task 6. Move with different take-off and landing patterns, experiment with factors of balance and stability.

Task 7. Move by taking weight on different parts of the body, stop on signal.

Task 8. Move from one stable position into another maintaining balance.

Analysis of teacher demonstration of one solution.

How were positions assumed?

Is the transition logical?

How could stability be decreased?

Task 9. Make self less stable in three successive moves but maintain balance.

Apparatus:- Review factors of stability and balance in relation to apparatus.

Lesson 6. Practice small equipment activity.

Movement theme:- stability and balance.

Task 1. Move from stable position of weight supported on 4 points, through 3,2,1, maintaining balance.

Each half of class demonstrate.

Analysis:- Can you change relationship of body to floor?

Can you change relationship of body parts supporting weight?

What factors influence ease of transition?

Task 2. Practice #1 sequence and be able to repeat accurately and with flow.

Apparatus:- Same as lesson 4.

Task 3. Using apparatus as obstacle, negotiate with reference to approach, take-off, and landing. Utilize principles of balance and control of force.

Review application of floor work to apparatus.

Lesson 7. Practice small equipment activities.

Task 1. Attempt two skills (selected by teacher from student solutions).

Task 2. Increase complexity of activity.

Movement theme:- transference of weight.

Task 3. Transfer weight onto adjacent parts of body.

Analysis:- What types of movement result?

Task 4. Rock by transferring weight to adjacent parts in number of different ways.

Task 5. Move from one rock to next with smooth transition.

Task 6. Utilizing one rocking position, change direction with a twist.

Task 7. Move from a rock to standing.

Analysis:- What are factors involved in achieving stand?

Task 8. Same as #7 utilizing suggestions from analysis.

Analysis:- What are efficient weight bearing parts of body?

How can you avoid taking weight on head in rocking or rolling movement?

Task 9. Roll in any direction using any appropriate part of body to receive weight.

Task 10. Move from rock into roll.

Task 11. Roll with hands catching weight.

Task 12. Supporting weight on hands, move feet to other spot.

Task 13. Supporting weight on hands, land on a) two feet, b) one foot after other.

Analysis:- How can principles already discovered be related to transference of weight onto non-adjacent parts?
Does position of head influence movement?

Task 14. Support weight on hands and
a) swing one leg high
b) swing legs past each other in air
c) swing legs together at top of swing

Task 15. Select one pattern and land from inverted position into roll.

Analysis:- What dictates direction and speed of roll?

Assignment:- How many ways can you move from 4 point ventral balance to 4 point dorsal balance or vice-versa?

Lesson 8. Solutions to assignment.

Task 1. Try all solutions with partner, discuss where assistance with weight transference is needed.

Movement theme:- Transferring and supporting weight.

Analysis:- What are principles of spotting?

Task 2. With partner, compose sequence of 4 movements involving rocking and rolling.

Analysis:- What different ways can you work with partner?

How can you change speed, direction, etc.?

Apparatus:- Ropes - take weight on arms and utilize leg patterns used in mat work.

Boom - travel from one end to other taking weight on arms, or arms and legs.

Box - take weight on hands as you go over, roll on mat.

Uneven bars - move from top bar to bottom bar, to mat, taking weight on hands and legs.

Bench - roll along and land on feet or hands coming off.

Springboard - different take-offs from board into roll on mat.

Lesson 9. Practice partner sequence.

Review safety factors, quality of movement, varying floor pattern and speed.

Analysis:- What is a "good" movement?

What is an efficient movement?

What constitutes form and style?

Movement theme:- Same as lesson 8

Task 1. Practice sequence for class to observe. 4 groups selected, comments from class on ways of using mats, floor pattern, relationship to partner.

Task 2. Relate observations to own sequence.

Apparatus:- Ropes - swing, using leg patterns, drop onto mat and roll.

Boom - same as before

Box - same as before

Uneven bars - same as before

Bench - same as before

Springboard - use board to get maxi-

mum height.

Lesson 10. Practice revised partner sequences.
 Movement theme:- transference of weight, flexion and extension.

Task 1. Travel transferring weight onto non-adjacent parts.

Task 2. Same, keep body compact.

Task 3. Same, keep body extended.

Task 4. Taking weight on hands transfer onto feet, with body compact.

Analysis:- Does speed influence movement?
 Does hip position influence movement?
 Can you change direction of movement?

Task 5. Same as #4, traveling length of gym and utilizing analysis.

Task 6. Taking weight on hands transfer onto feet, with body extended.

Task 7. Transfer weight, combining tuck and stretch and different take-offs and landings.

Analysis:- How does head influence balance and control in inverted position?

Task 8. Same as #7 emphasizing control - may utilize support from partner.

Task 9. Compose sequence with partner involving transference of weight onto adjacent and non-adjacent parts.

Apparatus:- Ropes - same as before, attempting to get maximum height.

Box - combine different ways of transferring weight to get onto, along, and off onto mat.

Springboard - different take-offs to get a) height, b) distance.

Horse - keeping close to apparatus, come off onto hands and into roll.

Lesson 11. Practice sequence.
 Movement theme:- same as lesson 10.

Review flexion and extension, and use of functional momentum.

Task 1. Revise sequence with partner, involving at least 6 distinct movements. Bring in body shape, use of space, smooth transitions, synchronization.

Apparatus:- Ropes - run, swing, flight with body tucked or stretched.

Box - same, involving tuck and stretch.

Springboard - flight, body tucked or stretched.

Horse - on and off involving stretch, tuck, stretch, or vice-versa.

Review influence of structure of apparatus.

Emphasize major part of body demonstrating flexion or extension.

Lesson 12. Practice sequence.

Movement theme:- same as lesson 10.

Review stretch and tuck in hands then body.

Review principles of stability and balance.

Task 1. Review partner sequence. Be able to repeat.

Analysis:- What should you do if you overbalance?

What should your partner do?

Apparatus:- Ropes - swing, twist in air to swing back, building up momentum.

Box - same as before

Horse and springboard - take weight on hands as you go over horse, body tucked or stretched.

Even parallel bars - get along or over involving tuck and stretch.

Lesson 13. Practice sequence.

Individual assistance.

Analysis of observation techniques.

Presentation of sequences to class.

Analysis of sequences.

Apparatus:- Same as before.

Task 1. Develop one solution at each section utilizing concepts suggested in analysis of sequences.

Review application to apparatus.

Lesson 14. Practice apparatus activities.

Movement theme:- continuity and flow.

Review safety factors in relation to momentum, balance, and body position.

Task 1. Find different ways of getting into and out of inverted position or roll.

Task 2. How many ways can you get into and out of a roll forwards, balance on head and hands, balance on hands?

Task 3. Go from roll forwards to a) walk, b) jump.

Analysis:- How can you avoid break in movement?

Task 4. Go from inverted position on head and hands into roll forwards, catch weight on adjacent parts.

Task 5. Same as #4 but from inverted position on hands.

Analysis of spotting.

Task 6. Go over from inverted position on hands to catch weight on feet -- back arched.

Task 7. Same, to standing position.

Analysis:- How should you place the new base of support?

What part of body initiates movement over?

Where do you need support?

Task 8. Show different ways of supporting recoveries from inverted positions.

Apparatus:- Ropes - assume inverted position, control landing on feet.

Box - roll along, inverted position off.

Horse and springboard - go over in inverted position.

Even parallel bars - along or over, involving at least one inverted position.

- Lesson 15. Review of apparatus work.
Review different ways of supporting partner's weight on apparatus.
Movement theme:- same as lesson 14.
Principles of establishing new base for own weight reception.
Apparatus:- Same sections as lesson 14.
Work on continuity, rhythm, control.
- Lesson 16. Practice of apparatus activities.
Task 1. Combine pieces of apparatus and arrange in combination that allows several possibilities of movement patterns.
Review limitations and possibilities suggested by structure and arrangement of apparatus.
Apparatus:- High Boom and Box
Balance Beam and 2 Benches
5 Ropes and Mats
Horse and 2 Rings
Window Ladders
Uneven Parallel Bars
Even Parallel Bars and low Balance Beam
Task 2. Compose sequence of movement on apparatus involving transference of weight and use of partners. (groups of 2 or 3)
Analysis:- Can you approach from different angles?
Can you change direction on apparatus?
Is there a link between different people in group?
Emphasis on control, counterbalance, logic of transitions.
- Lesson 17. Review of movement principles:- transference of weight, stability and balance, flow and continuity, supporting weight and counterbalance.
Apparatus:- Same as lesson 16, and same task.
- Lesson 18. Practice apparatus sequences.
Individual assistance.
Review supporting weight on body parts other than arms and legs.

Task 1. Select two sections of apparatus and develop form in sequence at both.

Lesson 19. Exploration of movement patterns with jump ropes.

Task 1. Turn rope once to every 2 steps

Task 2. Turn rope once to every 1 step

Task 3. Turn rope twice to every 1 step

Task 4. Duplicate patterns demonstrated by selected students.

Analysis:- What variations are possible with jump ropes?

Movement theme:- Supporting weight of another person.

Task 5. Support partner's weight on different body parts so that she is balanced on you.

Analysis:- How does your stability and size of supporting area influence stability of partner's balance?

Task 6. Move from one partner supporting to other, with control - interdependent.

Apparatus:- Practice sequences.

Lesson 20. Practice jump rope patterns.

Task 1. Combine patterns into rhythmical sequence.

Movement theme:- Same as lesson 19.

Review factors of resilience.

Apparatus and Mats:- review of partner sequences.

Alternate between mats and apparatus.

Review stability, supporting parts, counter-balance, static and dynamic positions, speed and momentum.

Lesson 21. Practice jump rope sequences.

Practice 2 turns to 1 jump.

Apparatus and Mats:- Final practice of routines for presentation.

Individual assistance.

Lesson 22. Explanation of thesis testing - proficiency test and Movement Concept Test.

Run through one apparatus and one mat routine.

Presentation of sequences.

Verbal review of material covered to date.:-

Locomotion

Stops

Take-off and landing

Functional momentum

Stability and balance

Logical progressions

Transference of weight

Torsion

Flexion and extension
 Inverted balance
 Supporting weight of others
 Continuity and flow

Lesson 23. Proficiency testing

Lesson 24. Movement Concept Test administered.

Lesson 25. Administration of Movement Concept Test; Teacher assignment.

Lesson 26. Tests administered, items to be related to completion of course, including: hand pulse rate before and after exercise; time hand-stand hang; how many steps running in place per minute; maximum number of sit-ups on regular 11 sec. in since did these; push-ups; maximum number sit-ups; low back flexibility test.

Information to content of course, including the apparatus, types of exercises done on each, and apparatus activities to be included, importance of conditioning. Each time a new skill is introduced, practice of previously learned ones including the new equipment is considered part of that day's conditioning.

Lesson 27. Exercises for flexibility, triceps strength, leg strength. Discussion of safety in gymnastics. Spotting philosophy explained, with specific techniques explained as they come throughout the course. Tug-of-war; sit-ups; forward roll; forward tumblers on still rings.

Lesson 28. Exercises for body strength, lateral trunk flexibility.

Tug-of-war; traveling on rings; front support on bars; one arm hang on still rings.

Lesson 29. Conditioning with rope twists, jump rope, stride stretches.

Tug-of-war; stride vault on back; elementary rope climbing.

Lesson 30. Conditioning with individuals choosing own exercises for improvement of flexibility, strength, and coordination.

APPENDIX D

LESSON PLAN OUTLINES
(TRADITIONAL)

Lesson 1. Preliminary announcements. Thesis and its first written test explained.

Lesson 2. Administration of Movement Concept Test. Locker assignment.

Lesson 3. Tests administered, items to be retested at conclusion of course, including:

- timed pulse rate before and after exercise
- timed bent-arm hang
- total steps running in place per minute
- maximum number modified or regular (1 man in class did these) push-ups
- maximum number sit-ups
- toe touch flexibility test

Introduction to content of course, explaining the apparatus, types of exercises done on each, non-apparatus activities to be included, importance of conditioning. Each time a new skill is introduced, practice of previously learned ones involving the same equipment is considered part of that day's conditioning.

Lesson 4. Exercises for flexibility, triceps strength, leg strength. Discussion of safety in gymnastics. Spotting philosophy explained, with specific techniques explained as they arose throughout the course.
Taught: tip-up; forward roll; forward turnover on Still Rings.

Lesson 5. Exercises for bicep strength, lateral trunk flexibility.
Taught: traveling on Rings; front support on Horse; nest hang on Still Rings.

Lesson 6. Conditioning with squat thrusts, jump ropes, stride stretches.
Taught: stride vault on Buck; elementary rope climbing.

Lesson 7. Conditioning with individuals choosing own exercises for improvement of flexibility, strength, and coordination.

Taught: forward and backward roll combination; "fish-flop;" tip-up to headstand.

Lesson 8. Exercises: jump up from kneel position; push-ups; sit-ups.

Taught: courage vault on Horse; head stand from piked and tucked positions; hand stand against wall; cartwheel.

Lesson 9. Exercises for endurance and flexibility.

Review of nest hang, courage vault, and head stands.

Taught: front support, swing to side seat, and side seat dismount on Parallel Bars; backward turnover -to- forward turnover on Still Rings.

Lesson 10. 5-minute exercise routine developed by each student for conditioning.

Taught: courage vault on Buck; back vault on Parallel Bars; backward traveling on Parallel Bars.

Review of Traveling Rings, stride vault on Buck, 3 types of head stands, and crab walk.

Lesson 11. Exercises for abdominal strength, leg strength, agility, and coordination.

Taught: inverted hang on Still Rings.

Students attempted several "physical fitness" battery items from Time-Life publication, The Healthier Life.

All apparatus set up, with opportunity to practice anything covered to date.

Lesson 12. Taught: front support to forward turnover on Uneven Parallel Bars.

Circuit practice with five stations, specific events to be performed at each. Groups moved from one to next, in order, going through each activity three times, as efficiently as possible, each student both spotting and performing. Stations: Rings, Parallel Bars, Horse, Buck, and Uneven Parallel Bars.

Lesson 13. Exercises for balance, biceps strength, and endurance.

Taught: 3-stage rope climb, changing ropes, and dismounting; inverted hang using Ropes; nest hang on Still Rings, one leg extended; inverted hang on Still Rings from both forward and backward turnovers.

Lesson 14. Introduction to Balance Beam. Practice on lines on floor, walking forward and backward, touching one knee, reversing knees. Trial on Low Beam.

Taught: front support mount with simple walk down and back on High Beam.

Practice on Traveling Rings, Horse, and Parallel Bars.

Lesson 15. Exercises same as lesson #10.

Review of stride vault on Buck, inverted hang from backward turnover on Still Rings; forward turnover on Still Rings.

Taught: squat vault on Horse; inverted hang on Parallel Bars; traveling and face vault on Parallel Bars.

Lesson 16. Introduction to Swedish Boom.

Taught: scissor and window vaults on Boom; inverted hang on Horse; angel and chest balances by couples.

Review of all tumbling skills covered to date.

Lesson 17. Class instructed by Nissen-Medart representative.

Lesson 18. First half period devoted to practice of anything needing extra work. Second half: administered short practical test, including: stride vault on Buck; back vault on Parallel Bars; nest hand from backward turnover on Still Rings; and courage vault on Horse.

Lesson 19. Three minutes of individually-selected strenuous endurance exercises, using a minimum of four different exercises.

Review: 10" tip-up, rope climb, inverted hang and split on Still Rings.

Taught: hand stand against wall; hand stand-turnover on Parallel Bars.

Lesson 20. Tumbling and self-testing skills, including review of "fishflop," rolls, V balance, angel and chest balances, and forward rolls from head stand and hand stand.

Practice of individual routines on Balance Beam, Traveling Rings, and Horse.

Lesson 21. Demonstrated routine on Parallel Bars for class to practice. Other practice to include: window and scissor vaults on Boom, face vault and traveling on Parallel Bars, and Still Rings inverted hangs from variety of starting positions.

Lesson 22. Instructions given for forthcoming thesis proficiency testing.

Taught: squat and flank vaults on Box.

Open practice on anything in course.

Lesson 23. Thesis proficiency testing.

Lesson 24. Re-administration of Movement Concept Test.

APPENDIX E

PROFICIENCY TEST

Movement Education Class

1. Balance self for five (5) seconds using some part of the body other than the feet.
2. Propel the body over a piece of apparatus.
3. Transfer weight from one body part to another with control and flow.
4. Demonstrate transition from extreme flexion to extreme extension or vice-versa, utilizing the trunk.
5. Support weight of another in a balanced position or in spotting.
6. Demonstrate one (1) movement pattern on three (3) of the following:- uneven parallel bars, ropes, horse, balance beam, box, boom, even parallel bars.

Traditionally Oriented Class

1. Do a V-balance, headstand, handstand, knee balance, or tip-up, and hold for five (5) seconds.
2. Do a vault over any piece of apparatus.
3. Do a cartwheel, fishflop, forward or backward roll.
4. Do a headstand to forward roll, handstand to forward roll, forward roll to standing position, or backward roll to handstand.
5. Do chest balance, angel balance, knee-shoulder balance, or back arch balance support.
6. Do one (1) acceptable exercise on three (3) of the following:- uneven parallel bars, ropes, horse, balance beam, box, boom, even parallel bars.

APPENDIX F

QUESTIONNAIRE

1. Did you think that this course was "different" in approach from other physical education courses you have taken?
2. Did Miss _____ give you enough (or too much) time to think through your ideas?
3. Did you want more specific (or general) tasks?
4. Did individual (or group, or partner) tasks appeal more to you?
5. Did apparatus and "mat work" frighten you at any time?
6. What aspects of the course were NOT appealing?
7. What aspects of the course were MOST appealing?
8. In a sentence -- what have you learned that you did not know before?

APPENDIX G

TABLE X

CORRELATION COEFFICIENTS BETWEEN SELF
AND IDEAL-SELF SORTS
(MOVEMENT EDUCATION ORIENTED CLASS)

Subject Number	First Testing	Second Testing
1	-.220	.125
2	.910	.926
3	.830	.848
4	-.026	.634
5	.300	.562
6	.690	.825
7	.359	.504
8	.437	.430
9	.520	.789
10	.528	.535
11	-.150	.030
12	.221	-.008
13	.693	.566
14	.323	.309
15	.330	.742
16	.590	.737
17	.926	.509
18	.630	.772
19	.258	.550
20	.132	.278
21	.203	.417
22	-.177	.086
23	.579	.370
24	.485	.323

TABLE XI
 CORRELATION COEFFICIENTS BETWEEN SELF
 AND IDEAL-SELF SORTS
 (TRADITIONALLY ORIENTED CLASS)

Subject Number	First Testing	Second Testing
1	.620	.623
2	.839	.825
3	.655	.936
4	.654	.707
5	.819	.824
6	.590	.520
7	.136	.001
8	.591	.600
9	.868	.911
10	.542	.643
11	.772	.839
12	.769	.620
13	.634	.810
14	.300	.649
15	.460	.121
16	.249	.116
17	.655	.718
18	.340	.472
19	-.403	-.010
20	.362	.225
21	.375	.523
22	.528	.590
23	.264	-.270
24	.810	.958

TABLE XII
CORRELATION COEFFICIENTS BETWEEN SELF
SORTS FROM INITIAL TO FINAL TESTING

Subject Number	Movement Education Class	Traditional Class
1	.490	.539
2	.876	.752
3	.813	.764
4	.465	.693
5	.612	.856
6	.780	.840
7	.451	.512
8	.672	.737
9	.733	.856
10	.810	.764
11	.658	.840
12	.474	.722
13	.620	.831
14	.719	.650
15	.706	.456
16	.868	.549
17	.775	.872
18	.805	.568
19	.737	.400
20	.470	.757
21	.654	.668
22	.438	.594
23	.500	.644
24	.668	.883

TABLE XIII
 CORRELATION COEFFICIENTS BETWEEN IDEAL-SELF
 SORTS FROM INITIAL TO FINAL TESTING

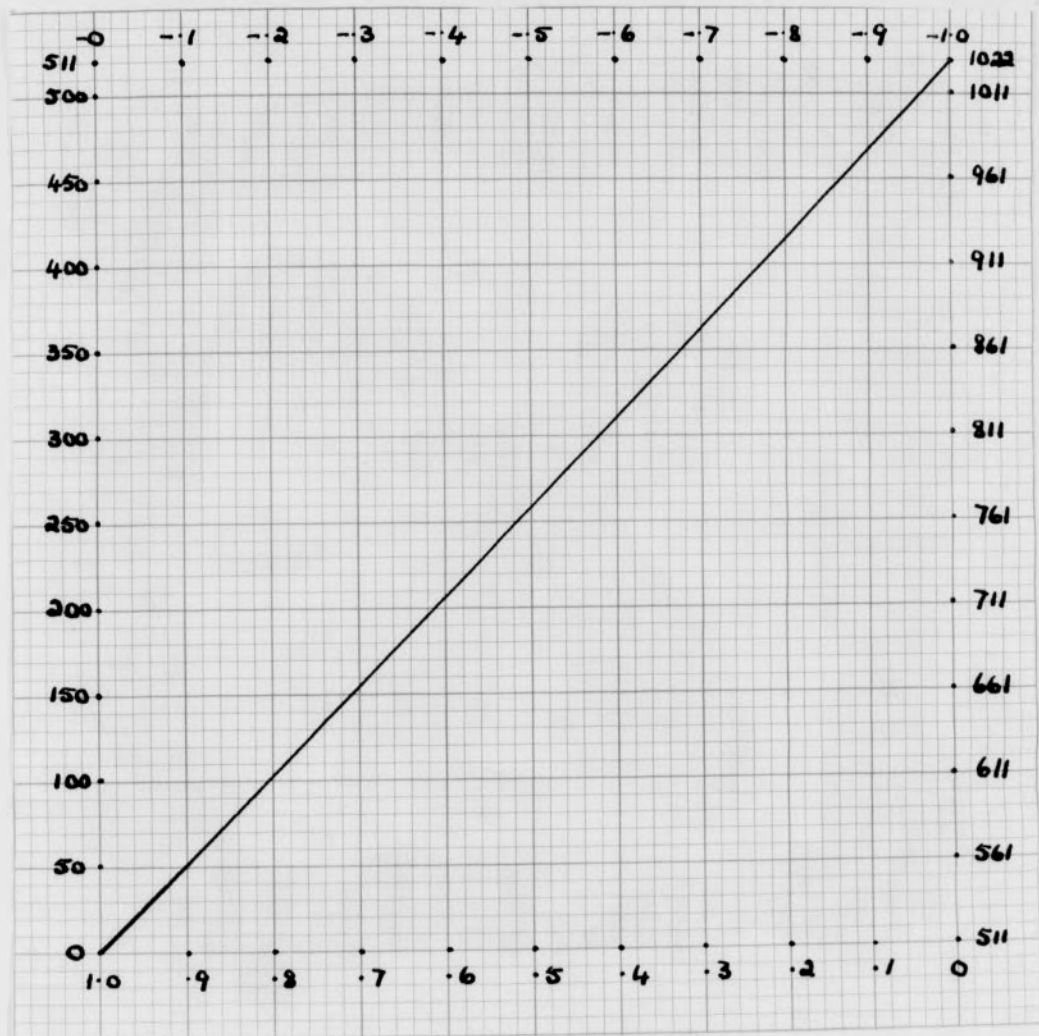
Subject Number	Movement Education Class	Traditional Class
1	.822	.594
2	.840	.783
3	.829	.769
4	.786	.840
5	.577	.876
6	.829	.728
7	.624	.724
8	.615	.876
9	.880	.868
10	.752	.737
11	.844	.828
12	.555	.722
13	.552	.825
14	.682	.670
15	.698	.690
16	.917	.722
17	.703	.903
18	.851	.630
19	.783	.658
20	.579	.750
21	.883	.381
22	.802	.668
23	.675	.675
24	.780	.844

APPENDIX H

TABLE XIV

RAW SCORES ON PROFICIENCY TEST
FOR BOTH EXPERIMENTAL CLASSES

Subject Number	Movement Education Class	Traditional Class
1	8	7
2	8	8
3	8	8
4	8	7
5	8	8
6	7	8
7	8	8
8	8	7
9	8	8
10	8	7
11	8	8
12	5	7
13	7	8
14	8	8
15	7	8
16	8	8
17	7	7
18	8	8
19	7	6
20	8	7
21	8	8
22	7	7
23	8	7
24	7	8



NOMOGRAPH