THE RELATIONSHIPS OF SELECTED MEASURES OF BODY IMAGE AND MOVEMENT CONCEPT TO TWO TYPES OF PROGRAMS OF PHYSICAL EDUCATION IN THE PRIMARY GRADES

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

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Approved by

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DEDICATION

To my parents who gave us the greatest encouragement to make
the most of all the experiences that life has to offer.

To all those whom I have been fortunate enough to encounter
during those experiences, who have contributed so much to my continuing education and, thereby, to my attainment of this degree.
ACKNOWLEDGMENTS

To all those friends, mentors, professional associates, statisticians, and the many others who guided, aided and spurred me on to the completion of this degree, I am indeed indebted. The acknowledgment of all the encouragement that I received from each one is but a small token of my very sincere feelings of gratitude. Many will not be mentioned by name but this does not detract from their contribution nor from my sincere thanks for that contribution.

To Dr. Margaret Mordy, whose wise counsel, professional dedication, and friendly interest I have appreciated and admired, I wish to express my thanks. I am very grateful for having had the privilege of knowing and working with her over the past two years.

To Professor Naomi Allenbaugh and Dr. Barbara Nelson a very special thank you is due for their keen interest, firm support, and careful guidance during the completion of this venturesome project. Support from Dr. G. Thompson and the interest shown by Dr. P. Clark was also very much appreciated.

I am indebted to Mr. Cromwell, Mr. Korn and Mr. Wilson of the Middletown Schools, who made this project possible by their kind cooperation in the utilization of their schools. Mrs. Jane Young and Mr. Barker also gave invaluable assistance.
To all the delightful children who participated in this study
go my heartfelt thanks and good wishes. For them and many like them
was this task undertaken.
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<tr>
<th>Year</th>
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</tbody>
</table>
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEDICATION</td>
<td>ii</td>
</tr>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>iii</td>
</tr>
<tr>
<td>VITA</td>
<td>v</td>
</tr>
<tr>
<td>TABLES</td>
<td>viii</td>
</tr>
<tr>
<td>FIGURES</td>
<td>ix</td>
</tr>
<tr>
<td>CHAPTERS</td>
<td></td>
</tr>
<tr>
<td>I Introduction</td>
<td>1</td>
</tr>
<tr>
<td>II Review of Literature</td>
<td>9</td>
</tr>
<tr>
<td>III Procedures</td>
<td>27</td>
</tr>
<tr>
<td>IV Analysis and Interpretation of Data</td>
<td>38</td>
</tr>
<tr>
<td>V Summary and Conclusions</td>
<td>60</td>
</tr>
<tr>
<td>APPENDIXES</td>
<td></td>
</tr>
<tr>
<td>A Test Instructions</td>
<td>68</td>
</tr>
<tr>
<td>B Grids for Estimation of Body Dimensions</td>
<td>75</td>
</tr>
<tr>
<td>C Answer Sheets</td>
<td>79</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>82</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Analysis of Variance for School and Grade with Height Estimation, Width Estimation and Movement Satisfaction Scores</td>
<td>40</td>
</tr>
<tr>
<td>2.</td>
<td>Mean and Standard Deviation of the Height and Width Estimation Measures, and the Movement Satisfaction Scores</td>
<td>41</td>
</tr>
<tr>
<td>3.</td>
<td>Analysis of Variance for School and Sex with Height Estimation, Width Estimation and Movement Satisfaction Scores</td>
<td>43</td>
</tr>
<tr>
<td>4.</td>
<td>Analysis of Variance for School and Skill Level with Height Estimation, Width Estimation and Movement Satisfaction Scores</td>
<td>48</td>
</tr>
<tr>
<td>5.</td>
<td>Analysis of Variance for Grade and Sex with Height Estimation, Width Estimation and Movement Satisfaction Scores</td>
<td>49</td>
</tr>
<tr>
<td>6.</td>
<td>Analysis of Variance for Grade and Skill Level with Height Estimation, Width Estimation and Movement Satisfaction Scores</td>
<td>50</td>
</tr>
<tr>
<td>7.</td>
<td>Analysis of Variance for Sex and Skill Level with Height Estimation, Width Estimation and Movement Satisfaction Scores</td>
<td>51</td>
</tr>
<tr>
<td>8.</td>
<td>Correlation Coefficients for All Measures relative to School, Grade, Sex and Skill</td>
<td>53</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Percentages of Under and Over-estimations of Height in School A and School B.</td>
<td>46</td>
</tr>
<tr>
<td>2.</td>
<td>The Percentages of Under and Over-estimations of Extended Height in School A and School B.</td>
<td>47</td>
</tr>
</tbody>
</table>
There have been many changes effected in education in recent years. The philosophy, principles and educational objectives that underly such changes are under the continual scrutiny of those charged with the responsibility of teaching in schools and colleges.

One general objective frequently stressed in education is that of self-actualization of the individual (8). That it is imperative for education to contribute to the individual's realization of his maximum potentialities can scarcely be argued. To become a fully functioning individual should be everyone's primary goal.

It has been stated by psychologists, particularly those identified with what is known as the "third force,"* that positive self-concept is a vital contributing factor to the achievement of self-actualization. Therefore, the development of a more positive self-concept should become a primary aim in education. Major contributions toward this end are made by those experiences which help to develop autonomous behavior on the part of the individual. Even more important, however,

*Combs, Kelly, Maslow, Rogers and Snygg would be a few of the psychologists who are identified with this group.
is the need for successful experiences if it is to be hoped that a positive self-concept will evolve.

The self-concept, they tell us, is one of the most important factors affecting the way in which an individual will behave. If this is true, then any educational program which hopes to make a difference in its charges must be concerned with the nature of the self and its development. (8, p. 93).

By self-concept, a very broad term including many factors, is meant the individual's awareness of himself in his total perspective; his abilities and limitations, his feelings and sensations (7). This concept is acquired both consciously and unconsciously, gradually becoming more stable over the years (22, 37). However, it is unlikely to become completely stabilized and seems always to remain open to change. The greatest changes, nevertheless, will most probably occur during the early years of growth and development of the individual.

Thus it would seem that, in education, the greatest opportunities for affecting changes relative to the self-concept should occur at the elementary school level. School programs should be designed with ego-enhancement as a most desirable outcome, and then some means of evaluation devised to measure the changes in the concept of self over the years.

Within the area of elementary physical education, a comparatively recently introduced program, called basic movement, * appears

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*The term basic movement as it is used in this study is defined on p. 8.
to be designed with a view to developing a more positive self-concept. The very nature of the program provides optimum opportunity for successful experiences, emphasizing creativity in response, and catering especially to individual differences. This program also stresses the importance of the development of self-motivation, self-determination, self-discipline, and self-evaluation or appraisal; the hallmarks of the autonomous individual. Autonomous behavior and successful experiences, as previously observed, are both essential to the development of a positive self-concept (8).

In order to make some assessment as to how successfully this program is affecting changes in the concept of self, some measure appropriate to physical education needs to be used. The question of whether this program differs from other types of programs of physical education, in respect to effecting such changes, needs to be explored.

Since the self-concept is comprised of many factors, aspects, or facets, it is necessary to examine the components of the whole in order to decide on which parts to focus any detailed investigation. In his examination of the various aspects of the self-concept, Jersild states that it includes, among other things, a perceptual component:

...the way a person perceives himself—the image he has of the appearance of his body, the picture he has of the impressions he makes on others. It also includes a conceptual component: his conception of his distinctive characteristics, his abilities, resources, assets, lacks, and limitations...There is also an attitudinal component of the self, including the feelings a person has about himself... (6, p. 196)
With regard to the perceptual component, it would seem that increased body awareness for more efficient use of the body in movement, a necessary part of any program of physical education, is important. Therefore, one of the more appropriate aspects of the self-concept to use for measuring outcomes of physical education programs might well be one relative to the body image. By body image is meant the total picture that an individual has of his body in terms of dimensions, proportions, and vulnerability to outside influences; as well as his differentiation of his body from his environment. Estimation of body dimensions as a measure of body image has previously been used quite successfully with young children and, therefore, should be acceptable for use in an exploratory study.

The relevance of the body image to physical education is highlighted by Schilder, who states that

It is remarkable...that movement leads to a better orientation in relation to our own body. We do not know very much about our body unless we move it. Movement is a great uniting factor between the different parts of our body. By movement we come into a definite relation to the outside world and objects, and only in contact with this outside world are we able to correlate the diverse impressions concerning our own body. The knowledge of our own body is to a great extent dependent upon our own action. (12, p. 112).

In view of this apparently close relationship between the body image and movement, it would seem appropriate then to use some aspect of the movement concept as another means of measuring program outcomes with regard to the self-concept. By movement concept is meant the total cognition, sensation, and emotion that an individual has about
his capacity and ability to move. Since Jersild included the attitudinal component of self as being an important factor of the self-concept, exploration of this aspect of the movement concept would appear to be very relevant. A cathetic measure presently being devised by Allen and Nelson (18) is primarily concerned with this attitudinal component.

Using estimation of body dimensions and a movement satisfaction (cathetic) scale, as appropriate measures of certain aspects of the self-concept, the present study was undertaken to assess the outcomes of a basic movement program in relation to another program of elementary physical education.

Although essentially exploratory in nature, by investigating possible differences between two school populations with differing programs it may be possible to begin to assess their respective value. It is hoped, at the same time, to contribute to knowledge of factors relative to possible differences between children of first and second grade level, between boys and girls, and between high and low-skilled children.

With these and many other measures still to be devised revealing the various aspects of the self-concept, it might eventually be possible to assess the contribution that physical education can make towards one of the primary educational objectives; self-actualization of the individual.
The purpose of this study was to determine whether there are any differences between the measures of certain aspects of the self-concept of first and second grade children in a basic movement program and those in an activities-oriented program of physical education.*

The certain aspects of self-concept to be explored were: body image, in terms of estimations of body dimensions, and movement concept, in terms of a movement satisfaction scale.

Sub-Problem

The revision and adaptation of a movement satisfaction scale devised by Allen and Nelson, to use with young children.

Hypotheses

On the basis of these problems the following hypotheses were investigated:

1. That there will be no significant difference between school A and school B in measures of:
   i) body height estimation,
   ii) body width estimation,
   iii) movement satisfaction - dissatisfaction.

2. That there will be no significant relationships among the measures of body height, body width and

*By "activities-oriented" is meant a program based primarily upon games, stunts and rhythms.
movement satisfaction:
i) in school A and school B,
ii) in grades one and two,
iii) for boys and girls,
iv) for the high and low-skilled.

Limitations of the study

1. The selection of subjects was limited to two schools in which children were generally recognized as disadvantaged; both schools receive Health, Education and Welfare subsidies.

2. The measures being used were limited to only one measure of body image and one measure of movement concept, as particular aspects of the self-concept.

3. The selection of the high and low-skilled children in each school was limited to the sole judgment of the respective physical education specialist, according to specified criteria.

Basic Assumptions

This study was based on the assumption that movement concept and body concept are indeed aspects of the total self-concept. It was also based on the assumption that body dimension estimates are an adequate measure of a particular aspect of body concept, and that the movement satisfaction scale is an adequate measure of a cathectic aspect of the movement concept.
Definition of Terms

Basic Movement - a wide variety of movement experiences focusing on the use of the body in relation to the concepts of space, time, force and flow.
These experiences provide a sound basis for all later movement behavior.
(In some texts such terms as movement exploration, movement education, and movement fundamentals, among others, are used synonymously with the term basic movement.)

Body-cathexis - the individual's feelings of satisfaction or dissatisfaction with his body parts or body functions. (41)

Body-image or body concept - "a term which refers to the body as a psychological experience, and focuses on the individual's feelings and attitudes towards his own body." (4, p.x) The individual's concept of his body may be conscious and/or unconscious.

Movement concept - the individual's conative, cognitive and affective attitudes towards movement, and his movement ability.

Self-actualization - the individual's maximum fulfillment of his potentialities, or the process of becoming a fully functioning person.
CHAPTER II

REVIEW OF RELATED LITERATURE

Evidence of man's interest in self has recurred consistently throughout recorded history, from such early references as Socrates' famed exhortation to "know thyself," via Descartes' meditations on the awareness of the existence of self, to the beginnings of American psychology, with William James' consideration of the topic of self as being worthy of much attention. Freud and, later, neo-Freudians stressed the importance of self in terms of ego and id functions, with a resulting gradual increase of studies in theories of personality. These theories, especially the current phenomenologically oriented theories of the "third force," have more recently attributed considerably greater importance to self-concept. (17, p. 2).

Empirical investigations, related to these theories, increased considerably in the last two decades and, as Ruth Wylie states, "one finds that a bewildering array of hypotheses, measuring instruments, and research designs has been used." (17, p. 3). More recently, to proliferate these studies still further, efforts have been made to ascertain and establish possible relationships between what is termed movement-concept and self-concept, and also between body-concept and self-concept. It is believed that all three might reveal some interdependency, each in some way, perhaps, influencing the other two.
Only through the added contribution of these and many other such studies can the entire nature of self-concept hope to be adequately understood. In order to place the present study within the total perspective of this current interest in the concept of self, an interest pursued by psychologists, sociologists, educationists and physical educationists alike, a survey of literature relative to body-concept and to movement concept was made.

Body Concept

Body image, body percept, body cathexis and body concept are terms with which the reader is frequently confronted in current literature relating to investigations concerning the concept one has of one's body. Some of these terms refer to the individual's conscious and verbalized concept of his body, and some to the individual's subjective experiences, concerning his body, which are below the level of awareness. Of the latter perhaps the most extensive research has been undertaken by Fisher and Cleveland (4) concerning body image.

In this area of research, mainly utilizing Barrier scores revealed by subjects' responses to Rorschach inkblots, the measure of definiteness and penetrability of the body boundary is inferred as a function of the individual's attitudes towards the periphery of his body. A large majority of the body image boundary research has been in the area of clinical psychology, with psycho-somatic and physiological orientation. Some reference has been made to implications of the body as a social object. Fisher and Cleveland, however, have also explored relationships
between body image boundary and other self measures. They found that there was no relationship between Barrier scores and body types, as identified by Sheldon's criteria (4, p. 110), and also that there was no relationship between verbalized self-concept, as measured by Bill's Index of Adjustment and Values, and Barrier scores (4, p. 112). Similar findings occurred between the Barrier scores and estimations of body height in Wood's study (50), and between Barrier scores and body cathexis measures in a study by Vincent and Dorsey (47). These findings seem to denote a lack of relationship between body image boundary measures and other measures of body concept, and suggest, also that the body image boundary measure does not relate to certain measures of self-concept.

Another large body of research has been undertaken by Wapner, Werner, and Witkin (15), amongst others, in the area of body percept. Here the emphasis has been on experimental research concerning body-environmental relationships where the individual's perception of his body is seen to vary as his spatial relationship to the environment changes. This is effected by means of spatial orientation tasks involving tilting chairs, tilting rooms and tilting rods and frames. The subject's degree of awareness of his body position in relation to the environment is said to be related to field-dependence or field-independence. It is of interest that there is apparently no relationship between body image in terms of boundary definiteness as measured by Barrier scores, and body percept in terms of field-independence as measured by the spatial
orientation tasks. These findings again reveal a fragmentation of the various aspects of the total body concept.

Other measures of body image relate to body distortion, as viewed through aniseikonic lenses, body articulation as measured by Draw-a-Person techniques, body size as revealed by subjects' estimations, and body-cathexis or body rating scales. Studies utilizing aniseikonic lenses or inverted images have been very limited and bear little relevance to the present study. Belzer (21), however, in using this technique found no significant difference in the effect of physical activity, as opposed to relative inactivity, upon body image.

Perhaps one of the techniques most often used to judge children's perceptions of their bodies, is the Draw-a-Person test. Two such studies of particular interest within the context of the present investigation are those undertaken by Elbaum (26) and Holden (32). Holden found significant improvement in the drawings of physically handicapped youngsters on the Draw-a-Person test after a two week summer camp experience. He hypothesized that in some way vigorous activity had clarified their body images. Elbaum drew relationships between the performance of six and seven year old children, with I.Q.'s between 100 and 120 on the Lincoln-Oseretsky Motor Development Scale and the Draw-a-Person test. Correlations averaging .89 indicated a high relationship between motor development and body image at this stage. Both studies seem to provide empirical support for the concept that knowledge of the body as a perceptual component of self is dependent upon
movement, or at least that the development of each one is vitally linked with the other.

The use of body size as a means of tapping the individual's concept of his body has grown considerably over recent years, with the introduction of increasingly sophisticated tools. Perhaps one of the simplest methods was that used by Katcher and Levin (33) in their study concerning children's conceptions of body size. Children were asked to select from schematic representations of body parts—heads, trunks, arms, and legs—the part nearest in size to father, mother, self and opposite sex. There was a large, medium, and small representation of each part. Children correctly perceived themselves as smallest, with father largest, and mother in between. The authors state that the four-six year old girls tended to be more accurate relative to their own size than the boys. This seems to point to a developmental difference in that girls may develop a better articulated body image earlier than boys.

Investigations into the size of body parts have also been made by Boraks (22), Fuhrer and Cowan (30), and Shontz (42), using adults. Whereas Boraks found that there was a significant general tendency to underestimate body part size, Shontz's study did not replicate this finding. Hip size was generally over-estimated, particularly by women, who also showed higher average errors on body part estimation than men. McFee's study (47) corroborates this finding, relative to the greater accuracy of men in estimating body dimensions. Shontz also investigated the ratings of the subjects' degree of satisfaction with forty body parts and somatic characteristics, but these yielded no evidence to support
the hypothesis that body part size estimates are a function of the degree
of body acceptance shown by the subject. Using a slightly different
approach, Fuhrer and Cowan obtained body part size estimates of adults
when each part was being actively moved and again when it was immo-
bile. The effect of active movement was to reduce under-estimation of
the respective parts. These findings support the apparently intimate
relationship between movement and body image, but do tend to confuse
the issue of adult over or under-estimation of body size.

Perhaps the most sophisticated technique used, to date, in
studies of perceived body size, was that devised by Dillon (24, 25).
This device was similar to an expanding door frame which could be
made higher or lower, narrower or wider by means of rope pulleys. With
this framework, descending and ascending estimates of body height,
depth, and width were made. It was found that the descending estimates
were significantly different from the true dimensions of height and depth,
whereas ascending estimates were not significantly different either way.
The subjects were much more accurate with the ascending than with the
descending scale. In a replication of this study, with added body dimen-
sions and repeated testing, it was found that the previous results were
duplicated and verified. These findings suggest that for more accurate
estimations of body dimensions ascending scales might be used, a help-
ful suggestion perhaps for gathering such data with young children.

A different technique of a slightly less objective and more
symbolic nature was used by Popper (38) in a study of children's
perceptions of their own heights, and those of certain adults known to them. The estimations were made relative to two sticks of different heights, set against a wall, scale representations of which had been made on a paper, to which the child had to transpose his judgments. It was found that the children significantly under-estimated their heights, with the girls under-estimating themselves more than the boys. It is also of interest that immediately prior to a second test, given two weeks later, failure experiences were induced with some children. These experiences resulted in changes of estimated height for boys, but not for girls, on the re-test. These sex differences might be accounted for by different values being placed on being tall and perhaps by different concerns relative to approved behaviors.

This Popper Height Estimation Test was adapted in two later studies by Woods (50) and McFee (47), who made similar investigations concerning relationships between Barrier scores, body dimension estimates, and motor tasks, with different age groups. Woods study was conducted with 143 children of eight, ten, and twelve years old. The findings relative to the investigated relationships were equivocal. However, relative to the estimations of body dimensions it was found that the children consistently under-estimated the vertical aspect of body space and also the horizontal measure of arm span. The children tended to over-estimate the hip and shoulder measurements on the horizontal plane. Woods hypothesizes that the tendency to under-estimate body size is related to a well-defined and intact body image, but there are conflicting
theses concerning the relationships of over and under-estimation of body dimensions to other psychological variables. Some of these propose that over and under-estimations are related to feelings of adequacy and inadequacy, or to greater control over, as opposed to threat from the environment, a concept that this investigator favors.

McFee's study was undertaken with a small volunteer sample of college students aged eighteen and twenty years old, with approximately ten men and ten women in each age group. The design of the study was essentially the same as that of Woods study, since it was intended to eventually collect data for the intervening age range to complete the picture of any developmental trends evidenced in the factors under consideration. The important difference in McFee's study, however, was the inclusion of a second technique for the estimation of body dimensions. This method was devised by McFee to eliminate possible subject errors that occur in the symbolization process of the Popper test. This tool, the McFee Grid (see Appendix B, pp. 75-78), was shown to increase the accuracy of the estimations of body dimensions as hypothesized, in most subjects. It is interesting to find that, in the adult groups in this study, the vertical dimensions of body space were over-estimated, a reversal of Woods' finding with children, and arm span under-estimated with men under-estimating and women over-estimating the shoulder and hip widths. Overall the men were more accurate in their estimations than the women. Of the other findings from this study perhaps the most important were the inferred relationships between Barrier score, motor
skill performance, and the dimensions of body space. This is one of the few studies that has indicated a relationship between the body image boundary measure and another measure relating to the body concept, in this case body dimension estimation; and also between the body image boundary measure and a measure of motor performance. It is worthy of note that this study also infers a relationship between body dimension estimation and motor performance, a factor very relevant to the present study.

One of the more recent measures to be devised relative to body concept is the body-cathexis scale, the best known and most widely used being that of Secord and Jourard (41). This scale includes body parts and body functions concerning which the subjects are asked to indicate their degree of satisfaction or dissatisfaction. The authors found in their study that this body-cathexis scale correlated significantly with their self-cathexis scale, thereby supporting their hypothesized relationship between body and self-concept. This hypothesis was also upheld later in a study by Zion (45) using Bill's Index of Adjustment and Values for the measure of self-concept and a similar index test devised by the author for the measure of self-concept.

Many studies have been undertaken utilizing the body-cathexis scale but most have little relevance to the present investigation. However, Read (39), Leahy (34), and Vincent and Dorsey (44), using Secord and Jourard's scale, studied the relationship of body image to motor performance, revealing some pertinent information. In Read's study, in
which he also used the Tennessee Self-Concept Scale, the author was investigating the influence of competitive and non-competitive programs of physical education on body image and self-concept. The fact that there were no significant differences between the subjects in the two programs relative to these measures is of particular interest in view of the paucity of information concerning these particular aspects of different programs. That the study also revealed constant winners to have significantly higher positive body-image and self-concept scores than constant losers in the competitive program scarcely seems surprising, but probably insufficient note will be made of the implications of these findings. Leahy used the body-cathexis and a body rating scale in his study together with a measure of motor performance on the stabilometer. The two scale scores were combined into a single body-image score which showed no significant correlation with the motor performance measure. Vincent and Dorsey (44) found a similar lack of relationships when they used the Barrier Index, the body-cathexis scale and the homonym test, with the Harvard Step test and grip strength as the physiological performance measures. Neither body-cathexis scores, nor Barrier scores related significantly to physiological performance. As noted previously, there were no correlations found in this study between the Barrier score and other body image measures.

In an overview of this area of research related to the body-concept it can be seen that there are some comparatively well-established findings, duplicated in several studies and seeming to fall into
a recurring pattern. Of these perhaps the most interesting, and somewhat baffling, is the apparent lack of relationships between the various measures of the body image. With reference to the Barrier score there was only one study (47) that inferred a relationship between Barrier scores and body dimension estimates; none of the others (4, 15, 44, 50) supported this finding. To further isolate or compartmentalize the many body image measures, it was also found in several studies that the body-cathexis and homonym tests show no significant correlation (41,44). Nor was any relationship found between body size estimation and degree of body part satisfaction (42). It seems that much more study needs to be made of the possible relationships between all aspects of the body-concept before an understanding of the nature of this concept can be achieved.

Another fairly consistent finding amongst these studies concerns the correlation between motor performance and body size estimations, even though the estimation techniques differed considerably (21, 16, 30, 32, 47). These results add strong support to the theorized inter-dependence of movement and body awareness, particularly in the early stages of development. It is interesting, however, to note that no such relationship seems to exist between body-image, as measured by the body-cathexis scale and motor and/or physiological performance (34, 39, 44).

The lack of consistency evident concerning body-size over or under-estimation might well be explained by the differing techniques
utilized in obtaining these measures. However, it is perhaps worth noting that there does seem to be a tendency for men to estimate body size more accurately than women (47, 42). Also it seems apparent that children tend to under-estimate in the vertical dimension (42, 50).

With reference to measures involving the Draw-a-Person Test, attention needs to be drawn to the fact that this is considered by Fisher and Cleveland (4, p. 35) and also by Levy (9, p. 257) amongst others, as an unvalidated and questionable technique for use as a testing measure, most often yielding equivocal results. However, the absolute dearth of suitable means for testing the body-concept of young children who have limited vocabulary and reading-writing skills precipitates the use of such measures for what they are capable of revealing, limited though they may be.

With regard to the relationship between body concept and self-concept, it would appear from the studies reviewed that the relationship is quite significant and consistent, even though differing instruments were used. This finding is upheld in the following studies relating to movement concept.

Movement Concept

One of the more recent abstractions of the self concept is that pertaining to the role of movement experiences, and the relationship of such experiences to the individual's self-image and self-awareness. This area of movement awareness, within the total picture of self-awareness, has been termed the movement concept, and is of particular
concern to physical educationists. Much of the research that has been completed concerning the movement concept has been done with college students as subjects. The studies that have been selected for review seem to relate most closely to the present study since they all investigate some aspect of motor performance as well as the movement concept and, therefore, are pertinent to present discussion.

Doudlah (46) probably stimulated much of the later research with her movement concept Q-sort technique, which she devised from the well-known Q-sort techniques for assessment of self-regard. Using this instrument, adapted for self-concept and body-concept also, together with the Scott-French Motor Ability Test, she investigated the relationships between these measures with college freshmen women. Significant correlations were found between body-concept and self-concept, and also between body-concept and movement-concept. A low relationship was found between movement concept and the motor ability test, but no significant relationship appeared between movement-concept and self-concept.

The same Q-sort was used by Nation (48) in a study of physical education and movement-concept, with college freshmen women. Tests were given at the beginning, and after five weeks of instruction, to students in fencing, swimming and body mechanics classes. Prior to instruction the only significant difference occurred between the fencing and swimming groups. After five weeks there was no significant difference between the two scores of the body mechanics group, but both
the swimming and fencing classes showed significant positive changes. From these two studies it would appear that there is some relationship between movement performance and movement concept but that possibly certain movement experiences interact more intimately with movement concept than others.

Stroble (43) also investigated relationships between movement, self, and body-concepts of college students but in relation to measures of physical fitness. She found that increased physical fitness resulted in a more secure body-image, and also in higher scores on the Q-sort relative to movement concept and to body concept.

Doudlah's Q-sort was again used by Nelson (49) in her investigation concerning self-actualization, self and body-cathexis, motor creativity and movement-concept. College students were tested on each of the variables with the following results. Of the self-actualization measures self-regard, spontaneity and inner-directedness were found to be related to body-cathexis, self-cathexis and movement-concept. Self-acceptance only related to body-cathexis and the homonyms test. Self-cathexis also related to body-cathexis and movement concept, the latter two also showing a relationship.

All the above studies corroborate the previous findings concerning the relationship of body-concept and self-concept, and body-concept with movement concept. However, the relationship between movement-concept and self-concept appears to be questionable at this point. A relationship between motor performance and body and movement concepts seems apparent, but the area of movement concept needs to be explored in many more studies before a clearer picture can hope to emerge.
One aspect of the movement concept that is currently being investigated is with reference to movement satisfaction; the cathexed image of movement. Based on the self and body cathexis scales of Secord and Jourard, Allen and Nelson have constructed a movement cathexis scale for fifteen to twenty-one year olds (18). This scale has been adapted and revised for application to the five to eight year old age range. The revision when applied in a pilot study yielded a scale reliability measure of .875. This is discussed in the chapter under procedures. The possibilities of such a scale in investigating attitudes towards movement are unending and open up a vast wealth of future research to contribute to present findings. Studies such as those concerning the effect of movement experiences towards movement; or of the relationships between self, body, and movement concepts - using similarly oriented and constructed measures - are examples of possible future research topics.

Within this review of literature one feature becomes startlingly apparent, the desperate lack of research concerning the primary grade children. A few of the studies relate to elementary school children (26, 33, 42, 50) but only two of these to children under eight years old. Of all the studies encountered in the annals of physical education research, which does include many relevant to fitness, motor ability, motor creativity, motor skills, perceptual-motor ability and similar topics, only one not previously mentioned seems to be particularly relevant to the present study.
In comparing two differing programs of physical education, Scott (40) used first grade children. The comparison was made between a formal and an informal* method of teaching physical education using physical fitness, perceptual-motor, and creative ability tests to measure the differences. The results showed that the informal method was more effective than the formal in developing creativity, but not as effective as no program. Both programs were equally better than no program in the development of physical fitness, and there was no significant difference in the effect on perceptual-motor development. This really does not reveal much more than the fact that with these measures there is little difference evident between the two methods. However, this was one of the few attempts to evaluate differing programs, and the more studies that can be made, with as great a variety of testing measures as can be devised, the more likely it is that a more revealing assessment of the respective values of differing methods can be effected. As stated above, however, it is the difficulty of finding appropriate instruments for testing young children that hinders research in the primary grades at this time.

SUMMARY

Empirical investigations relative to personality theories have

*"Formal" relates very closely to an activities-oriented program and "informal" is essentially the same as a basic movement program.
increased considerably in the last two decades. Most recently, due in part to the phenomenological orientation of the theorists of the "third force," efforts have been made to discover the nature of the possible relationships between body-concept, movement-concept, and self-concept, since all three seem to be interdependent to some degree.

In reviewing the literature relative to body-concept the studies appear to be grouped around such topics as the following: body image as revealed by Fisher and Cleveland's Barrier Score Index; body concept as measured by Witkin et al. in terms of field-dependence/independence, or by means of aniseikonic lenses; body awareness as indicated by degree of articulation of drawn figures; body size as revealed by estimations of body dimensions; and body cathexis as determined by means of scales and tests. From these studies it is seen that the relationships between these various measures of body concept are far from consistent, but many of them independently show quite significant relationships to self-concept. Some consistency is found concerning the relationship between body size estimations and various measures of motor performance, and in the tendency for children to under-estimate height as opposed to adults' over-estimation.

Literature relating to movement concept is far from extensive, and discussion was limited still further to those few investigations considered most relevant to the present study. The relationships between body concept, movement-concept, and self-concept were explored in these studies, as well as the relationship between these and
some measure of motor performance. The results of these studies corroborated the findings above, concerning the relationship of body-concept and self-concept, and showed body-concept and movement-concept correlation also. However, the relationship between movement-concept and self-concept was inconsistent and therefore questionable at this point. There appears to be a relationship between movement-concept and motor performance, but different movement experiences seem to affect the relationship to varying degrees. Many more exploratory studies need to be undertaken in the area of movement-concept in order to obtain a clearer picture of possible relationships to other self-measures. An avenue is being opened to further such investigations by the development of a movement-cathexis scale, devised by Allen and Nelson, and adapted for use in the present study.

One particular void was revealed in the related research in the area of studies concerning primary grade children. investigations relative to motor development, fitness, motor creativity, motor skills and perceptual-motor skills have been made, but studies relating to comparisons of programs in terms of aspects of the self-concept seem to be non-existent. The problem of finding appropriate instruments contributes to the dearth of research with children under nine years of age. Perhaps the energies of researchers should focus on this problem in the effort to overcome the difficulty, and to provide new tools to further investigation in a much needed area.
CHAPTER III

PROCEDURES

This chapter includes the description of the selection of subjects, the selection of tests, and the collection of data.

It should be noted that in order to examine the differences between, and the relationships among, the particular variables under consideration in this study, the selection both of subjects and appropriate tests was limited. The manner of administration of the tests was of prime importance relative to the grade levels involved, therefore the appropriateness of instructions and content for six and seven year olds was very carefully considered.

SELECTION OF SUBJECTS

One of the purposes of this study was to examine whether, at the primary level, a basic movement program of physical education might affect the variables under consideration differently than an activities-oriented program. Therefore it was essential to find a school where a basic movement program had been in operation consistently over a significant period of time. Owing to the recency of introduction of this type of program in the schools, the selection of an appropriate school
was somewhat limited. The Central School in Middletown, Ohio, was finally selected as exemplifying a good basic movement program of primary physical education. The Sherman School in Middletown, Ohio, was selected as exemplifying a good activities-oriented program of primary physical education.

These two schools were selected as being as nearly comparable as possible in every way, but for the differing physical education programs, each of which is taught by a specialist teacher of physical education. Both schools are situated in a low socio-economic area, and both receive Health, Education and Welfare subsidies.

The selection of subjects in each school was, of necessity, limited to all first and second grade children, since the basic movement program has been in operation for only two full years at school B.* The total number of children tested in both schools was 253. The final number of children completing all tests, however, was 211, due to a) absence from one of the two tests, or b) in a few cases, incompletion of one or the other of the tests.

A further selection was undertaken in each school of the 15 highest and 15 lowest skilled subjects in each of the above grade levels who had completed all tests. The identification of these children was made by the physical education specialists, according to the criteria specified below.

*The Central School, Middletown, with the basic movement program will hereafter be referred to as school B. The Sherman School, with the activities-oriented program will be referred to as school A.
Criteria for the Selection of High and Low Skilled Subjects

The selection of the 15 highest skilled and the 15 lowest skilled subjects in each grade level, in each school, is to be based upon the following criteria:

1. The efficiency, or inefficiency, of the subject in performing the following fundamental skills:
   a) locomotor - walk, run, hop, jump, skip, gallop,
   b) manipulative - bounce, catch, throw, kick.

2. The appropriate, or inappropriate, demonstration of the following principles of human movement in the performance of movement tasks: opposition, follow-through, objective-focus, total assembly.

3. The general agility, flexibility, strength, and coordination of the subject, or lack of same, in performing the normal tasks of the physical education lesson.

SELECTION OF TESTS

With the age range of the subjects being used in this study limited to the first and second grades, the selection of appropriate means to measure the variables being examined became problematic.

In the area of body image, most of the existing measuring instruments, as reported in previous research, are unsuitable and have not been adapted for use with first and second grade children whose vocabulary, and reading and writing ability are in the early stages of development. The most appropriate instrument, relating to awareness
of body image in terms of body dimensions, was found to be the McFee Grid Test (47). This test, with adaptation of the instructions for comprehension by first and second grade children, was found to be within the capabilities of the respective age levels, to be suitable for group administration, and to yield an objective score.

The use of the Popper Test was considered, but rejected because of the symbolic treatment of the perceived body dimensions required by the subjects, believed to be beyond their level of cognitive development.

In the McFee Grid Test the subject notes his dimensions directly from the grid as he perceives them, identified by the appropriate grid numbers. These dimensions include height, extended height, shoulder width, hip width, and arm span.

In the area of movement concept it was again found that existing measuring instruments were unsuitable for administration to first and second grade children, being beyond their level of comprehension. The investigator was aware of the current research being undertaken at The Ohio State University, by Allen and Nelson, relative to movement concept in the form of a movement satisfaction-dissatisfaction scale.

Allen and Nelson have established a seventy-five item, Likert five point scale, from a list of approximately 150 statements concerning movement. The original list was submitted to a jury consisting of ten recognized authorities in the field of physical education, who were asked to judge the items concerning their relevancy to and possible
adequacy in examining a student's satisfaction or dissatisfaction with her own movement. Based on the judges' ratings for each item the scale was refined to the present seventy-five items. The seventy-five item scale was then tested for reliability, using college students as subjects; analysis of the results yielding a reliability coefficient of .96. On the basis of the analysis of item reliability it is hoped to reduce the number of items to fifty for the final form of the test. The results of this study are not yet published.

A revision and adaptation of this scale for use with primary grade children was undertaken by the investigator. Fifty-five statements were submitted to a jury of five authorities in the field of elementary physical education for judgment on the relevance and appropriateness of the items for examining primary grade children's feelings of satisfaction or dissatisfaction concerning their own movement. A final revision consisting of fifty items, to be answered on a simulated Likert five point scale, was made. This was used in a pilot study with first and second grade children to establish the reliability.

The pilot study was done at the Walford Elementary School in Columbus, Ohio, the subjects being the total first and second grade population of the school. No children participated in organized activity prior to testing; both first grade classes were tested at 9:00 a.m., the second grades being tested later in the day. Ninety-one subjects completed the test, five tests having to be rejected because of being incomplete.
An item analysis was performed on the test results with the assistance of Professor Omar Goode of the College of Administrative Science Data Centre at The Ohio State University. A scale reliability coefficient of .875 was determined by computer, and individual item reliability was also computed for each item in the scale. On the basis of the item reliability measures the twenty least reliable items were eliminated from the scale, a) to improve the total scale reliability and b) to improve the feasibility of administration of the test to first and second grade children, whose attention span does not adequately accommodate a fifty item test.

Thus a thirty item movement satisfaction-dissatisfaction scale was established for testing first and second grade children, with the innovative feature of animated drawings for the five point scale. These drawings were representative of very happy, happy, undecided, sad, and very sad ratings; depicted by a Snoopy figure. The children in the pilot study were seen to identify very readily with the Snoopy figures, and to enjoy the novelty of this mode of responding to the items. Therefore, this particular method of responding was retained for the remainder of the research study.

COLLECTION OF DATA

The following is a description of the administration of the tests selected for the collection of data. It was possible for group administration procedures to be used for both tests, although the estimation of
body dimensions required smaller groupings than the movement satisfaction scale which was administered to total class groups.

The Body Image Factor

Body dimension estimates were collected during three successive days at both schools, just prior to the Easter vacation, as were the actual body measurements of all subjects. The same test administrators worked with the children in both schools.

In each school, in a suitable space designated by the Principal, two testing stations were set up. On one side, the two grids for the estimation of height and width measurements were suspended from the wall. On the other side, meter sticks were taped to the wall to facilitate taking the actual measurements of the children. Two testers were at each station, one administering the test for estimation of dimensions with one monitoring, and one measuring the actual body dimensions with the other recording. Since the attention span of children of these ages is short, the children moved from vertical estimates to vertical actual measures, to horizontal estimates to horizontal actual measures, in alternating groups.

The McFee Grids used for estimation of body dimensions were each drawn on a sheet of white plastic, 5' x 10', on which a series of parallel lines were drawn, two centimeters apart. A centered line ran through the length of the grid. Randomly selected numbers were spaced opposite every other line, four centimeters apart, for use in identifying the estimated height and width dimensions. The vertical grid was used
for height and extended height dimensions. The horizontal grid was used for shoulder width, arm span, and hip width dimensions. A small sample of the grid was used to demonstrate how the McFee grid should be utilized. The test instructions * are to be found in Appendix A, (pp. 68-70), and the grids in Appendix B, (pp. 75-78).

**Scoring.** The score for each body dimension estimate was obtained by means of a key identifying the centimeter measure represented by each random number on the grid. The difference between this grid score and the actual measurement of the respective dimensions was then determined, yielding a score for each dimension. This discrepancy score showed the degree of accuracy of the subject estimates.

The average discrepancy score for the two height estimates was determined and the average discrepancy score for the three width estimates was determined. These two resulting scores, one for height and one for width estimates, were used as separate variables rather than combining them into a single score. The children seemed to perceive these two different dimensions very differently, and it was of interest to see possible relationships with each independent of the other.

**The Movement Concept Factor**

The movement satisfaction scale test was administered at School B during one week of the spring term, on two successive days

*These instructions were adapted from the original test by McFee and administered by McFee in this study. For procedures and instructions for college students refer to the original. (37, p. 31).
at 9:00 a.m. and 9:45 a.m. In the following week, the test was administered at School A on three successive days at 9:00 a.m. and 9:45 a.m. All first grades were tested at 9:00 a.m., and all second grades at 9:45 a.m.; no children having participated in physical education prior to testing.

The Movement Satisfaction Scale. * Prior to testing, the investigator had tape recorded the thirty items of the movement satisfaction scale; they were worded in question form. This was done in order to eliminate as much voice inflection as possible since the inflection may have influenced the response of the subjects. Also, with the use of the tape, the administration of the actual test was standardized for every group. Sufficient time was given between each item on the tape for the response to be given. If subjects were having difficulty, at first, in responding within the given time, the tape was stopped until the response had been made.

The children were tested in their own classrooms, sitting at their own desks. Each child was given a "post office" pencil. This pencil was red at one end and blue at the other. The boys were asked to use the blue end of the pencil and the girls the red end. ** Each child was also given two answer sheets of Snoopy drawings, representative of the five points of the Likert scale. See appendix C, (p. 80).

* This refers only to the investigator's revision and adaptation of the Allen and Nelson scale.

** This was done because the investigator found in the pilot study that some of the names were very confusing regarding sex; the use of red and blue was an easy means of sex identification.
The children were to respond to each question by coloring the Snoopy who best showed how they felt about it.

A large scale reproduction of the five Snoopy figures was drawn on wide white shelf paper and pinned to the blackboard in front of the class for use in describing the test procedures. The test instructions are to be found in Appendix A, (pp. 71-74).

**Scoring.** For computation of each subject's score, the responses were given a value from 1 (very happy), to 5 (very sad), for each item on the scale. A total score was determined for the scale by summing the thirty item scores.

As well as the movement satisfaction scale score and the height and width discrepancy scores, the school, grade, sex, and skill level for each subject was recorded on the coding sheets for the programming of the data, ready for computer analysis.

**ANALYSIS OF DATA**

The data for the 211 subjects were programmed for analysis of variance using a factorial design with unequal cell frequency, and also for correlation between variables. Eighteen separate problems were computed for the analysis of variance and six separate problems were computed for the correlations. All material was processed at The Ohio State University Computing Center. Levels of significance were determined by statistical tables in standard texts.
SUMMARY

The Central and Sherman Elementary Schools, both of Midletown, Ohio, were selected for this study as exemplifying a good basic movement and a good activities-oriented physical education program respectively. All first and second grade children were tested during the latter part of the winter term for dimension estimates. Movement satisfaction scale testing was undertaken early in the spring term.

Two tests only were selected and used in this study, one yielding a factor relative to body image, and the other relative to movement concept. The McFee Grid Test was used for the former, and a movement satisfaction scale for the latter. Both tests had been shown to have adequate face validity and reliability, and had been carefully adapted to the age level under consideration.

The scores obtained from the testing procedures were a) two indicative of each subject's accuracy of estimating the body dimensions of height and width (a discrepancy score), and b) one score denoting each subject's measure of satisfaction-dissatisfaction with his own movement (a scale score). Together with the identification of school, grade, sex and skill level variables, the data were recorded on coding sheets for computer programming.

The data were programmed for analysis of variance and for correlation between the variables. All material was processed at the computer center of The Ohio State University.
CHAPTER IV

ANALYSIS AND INTERPRETATION OF THE DATA

The collected and coded data from this study were programmed and processed at The Ohio State University Computer Center. Two methods were used for the analysis of the data relative to the two basic hypotheses of the study. An analysis of variance for factorial design with unequal cell frequency, least square solution, was used for testing significant differences between schools, grades, sex, and skill levels relative to the height estimation, width estimation, and movement satisfaction scores. A correlation technique was used to determine relationships among the height estimation, width estimation, and movement satisfaction variables relative to school, grade, sex and skill level.*

It had been established that the null hypothesis concerning significant difference would be rejected at the .05 level of confidence.

Since the four independent variables of school, grade, sex, and skill level were being examined in relation to three different test scores, with possible interaction between the independent variables

*Acknowledgement is made to Mr. Golhar of The Ohio State University Computer Center for his advice on design and statistics used in this study.
also being investigated, eighteen problems were computed. The results of these are given in the following tables.

The major purpose of this study being to determine whether there was a significant difference between school A and school B relative to the measures under investigation, Table 1, (p. 40) is of immediate interest. Examination of the analysis of variance for school and grade reveals a significant difference between schools at the .05 level of confidence with regard to both the height estimation and movement satisfaction scores. There was no significant difference between schools relative to the width estimations at the .05 level; but it may be noted perhaps, that the width estimation scores were significant at less than the .10 level (P < .10).

In order to understand these differences, it is necessary to look at Table 2, (p. 41) which shows the mean and standard deviation scores for boys and girls in grade one and two in each school.

The Height Estimation Score

The height estimation score showed the degree of discrepancy, in centimeters, between the subject's estimated and actual height.

Between schools. As stated above, the data in Table I show a significant difference between schools with regard to height estimation. With reference to Table 2, in both grade one and grade two, the mean scores of the children in school B are lower than those in school A. Also, as the standard deviations imply, there is, on the whole, less individual variation in score in school B than in school A. This illustrates
Table 1

Analysis of Variance for School and Grade X the Height Estimation, Width Estimation and Movement Satisfaction Scores

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Height Estimation</th>
<th></th>
<th>Width Estimation</th>
<th></th>
<th>Movement Satisfaction</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DF</td>
<td>MS</td>
<td>F</td>
<td>DF</td>
<td>MS</td>
<td>F</td>
</tr>
<tr>
<td>School</td>
<td>1</td>
<td>1415.9473</td>
<td>3.9232&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
<td>3762.2969</td>
<td>3.6659</td>
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<tr>
<td>Grade</td>
<td>1</td>
<td>98.5724</td>
<td>0.2731</td>
<td>1</td>
<td>985.7996</td>
<td>0.9605</td>
</tr>
<tr>
<td>Sch. &amp; Gr.</td>
<td>1</td>
<td>70.4901</td>
<td>0.1953&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1</td>
<td>161.9504</td>
<td>0.1578&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>Error</td>
<td>207</td>
<td>360.9148</td>
<td></td>
<td>207</td>
<td>1026.3064</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Significant difference at .05 level of confidence

<sup>b</sup>No interaction
## Table 2
Mean and Standard Deviation of the Height and Width Estimation Measures and Movement Satisfaction Scores

<table>
<thead>
<tr>
<th>Grade</th>
<th>School A</th>
<th></th>
<th>School B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
</tr>
<tr>
<td>Height Mean c.m.</td>
<td>22.11</td>
<td>24.34</td>
<td>17.86</td>
<td>21.85</td>
</tr>
<tr>
<td>Estimates S.D.</td>
<td>17.84</td>
<td>18.12</td>
<td>14.28</td>
<td>18.75</td>
</tr>
<tr>
<td>Width Mean c.m.</td>
<td>33.68</td>
<td>33.31</td>
<td>42.86</td>
<td>36.05</td>
</tr>
<tr>
<td>Estimates S.D.</td>
<td>34.23</td>
<td>24.04</td>
<td>32.97</td>
<td>29.70</td>
</tr>
<tr>
<td>Mov. Sat. Mean c.m.</td>
<td>82.58</td>
<td>85.07</td>
<td>75.04</td>
<td>82.35</td>
</tr>
<tr>
<td>Scores S.D.</td>
<td>13.93</td>
<td>13.01</td>
<td>21.52</td>
<td>15.92</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height Mean c.m.</td>
<td>23.50</td>
<td>22.97</td>
<td>18.79</td>
<td>15.26</td>
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<tr>
<td>Width Mean c.m.</td>
<td>22.73</td>
<td>30.66</td>
<td>33.33</td>
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<tr>
<td>Estimates S.D.</td>
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<td>30.77</td>
<td>43.93</td>
<td>36.94</td>
<td></td>
</tr>
<tr>
<td>Mov. Sat. Mean c.m.</td>
<td>84.85</td>
<td>87.42</td>
<td>79.83</td>
<td>74.33</td>
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<tr>
<td>Scores S.D.</td>
<td>12.73</td>
<td>10.59</td>
<td>16.34</td>
<td>17.95</td>
<td></td>
</tr>
</tbody>
</table>
that school B was more accurate than school A in their estimations of height. These data suggest that the children in school B have a better articulated body image than the children in school A, at least in reference to the vertical dimensions.

Between grades. As has already been stated, there is no significant difference between grades one and two with regard to height estimations.

The Movement Satisfaction Scale Score

This score which represented each subject's degree of satisfaction or liking for his or her own movement, indicates either a more positive (nearest to a score of thirty), or a more negative feeling toward movement (lowest possible score being 150).

Between schools. Table 1, as previously stated, revealed a significant difference between schools relative to the movement satisfaction score. In studying Table 2 it is seen that school B mean scores show a more positive direction than school A, although the standard deviations indicate greater individual variation in school B. This suggests that the children in school B are more satisfied with, and have more positive feelings towards their movement than those in school A.

Between grades. As has been stated previously, there is no significant difference between grades one and two with regard to movement satisfaction scores.

Table 3, (p.43) which gives the analysis of variance between school and sex relative to the measures under investigation, reveals a
<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Height Estimation</th>
<th>Width Estimation</th>
<th>Movement Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DF</td>
<td>MS</td>
<td>F</td>
</tr>
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<td>1342.0940</td>
<td>3.7108&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>Sex</td>
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<td>2.8441</td>
<td>0.0079</td>
</tr>
<tr>
<td>Sch. &amp; Sex</td>
<td>1</td>
<td>9.9684</td>
<td>0.0276&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>207</td>
<td>361.6697</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Significant difference at .05 level of confidence

<sup>b</sup>No interaction
significant difference between schools concerning all three measures.

The significant differences at the .05 level between the schools with regard to the height estimation and also the movement satisfaction scores serve to confirm the findings in Table 1.

**Width Estimations**

With regard to the width estimations, however, Table 3 reveals a significant difference when the school's scores are grouped according to sex rather than grade. Again it is necessary to refer to Table 2 to determine the direction of the difference.

**Between schools.** It is seen from the mean scores of width estimations that school A subjects are more accurate in their width estimations, particularly at the second grade level, and do not differ so widely between individual scores as school B, according to the standard deviations. These findings suggest that the children in school A are more accurate in estimation of width dimensions than school B, i.e. have a better articulation of body image in the horizontal dimensions. This data is rather confusing when considered in relation to the height estimates since this brings a complete reversal of the findings in the vertical dimensions. However, it should be noted that many of the children were grossly inaccurate in judging their width dimensions. Further discussion relative to these findings will follow after studying Figures 1 and 2, (pp.45-46) to throw further light on these differences.

As Table 3 also reveals, there are no significant differences between boys and girls relative to these measures and no interaction between school and sex.
Figure 1: The Percentages of Under and Over estimations of Height in Schools A and B.
Figure 2: The Percentages of Under and Over estimations of Extended Height in Schools A and B.
Table 4, (p. 48) which is concerned with variance between school and skill level relative to the measures under investigation, again confirms some of the previous findings. As in Table 3, there is a significant difference at the .05 level both in the width estimation scores and the movement satisfaction scores; these findings having been discussed above. In Table 4, however, it is seen that there is no significant difference between schools in height estimation scores when the data are grouped according to school and skill level. It is well to note nevertheless, that the difference is significant at less than the .10 level (P < .10). Also, there does seem to be some interaction between school and skill level relative to this measure although not at the .05 level of significance.

With regard to the high and low skilled subjects, there is no significant difference in any of the measures and no interaction at the .05 level, as indicated, between school and skill level.

Tables 5, 6, and 7 (pp. 49-51) will be discussed jointly since these tables all reveal similar findings. These tables refer to data for grade and sex, grade and skill level, and sex and skill level respectively, with regard to the height estimation, width estimation, and movement satisfaction scores. All three analyses reveal no significant differences between the grade, sex or skill level groupings regarding these measures. These findings confirm those of Tables 1, 3, and 4 where grade, sex and skill level did not show any interaction with school groupings relative to the data under consideration.
Table 4
Analysis of Variance for School and Skill Level X the Height Estimation, Width Estimation and Movement Satisfaction Scores

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Height Estimation</th>
<th>Width Estimation</th>
<th>Movement Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DF</td>
<td>MS</td>
<td>F</td>
</tr>
<tr>
<td>School</td>
<td>1.</td>
<td>848.0056</td>
<td>3.1392</td>
</tr>
<tr>
<td>Skill Level</td>
<td>1.</td>
<td>392.4080</td>
<td>1.4526</td>
</tr>
<tr>
<td>Sch. &amp; S.L.</td>
<td>1.</td>
<td>785.4006</td>
<td>2.9074&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>116.</td>
<td>270.1360</td>
<td>116.</td>
</tr>
</tbody>
</table>

<sup>a</sup>Significant difference at the .05 level of confidence

<sup>b</sup>No interaction
Table 5

Analysis of Variance for Grade and Sex X the Height Estimation, Width Estimation and Movement Satisfaction Scores

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Height Estimation</th>
<th>Width Estimation</th>
<th>Movement Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DF</td>
<td>MS</td>
<td>F</td>
</tr>
<tr>
<td>Grade</td>
<td>1</td>
<td>66.7914</td>
<td>0.1824</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>44.9164</td>
<td>0.1227</td>
</tr>
<tr>
<td>Gr. &amp; Sex</td>
<td>1</td>
<td>353.8960</td>
<td>0.9665&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>207</td>
<td>366.1689</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Significant difference at .05 level of confidence

<sup>b</sup>No interaction
Table 6

Analysis of Variance for Grade and Skill Level X the Height Estimation, Width Estimation and Movement Satisfaction Scores

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Height Estimation</th>
<th>Width Estimation</th>
<th>Movement Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DF</td>
<td>MS</td>
<td>F</td>
</tr>
<tr>
<td>Grade</td>
<td>1</td>
<td>414.4041</td>
<td>1.4779</td>
</tr>
<tr>
<td>Skill</td>
<td>1</td>
<td>392.4080</td>
<td>1.3995</td>
</tr>
<tr>
<td>Gr. &amp; Skill</td>
<td>1</td>
<td>29.0061</td>
<td>0.1034b</td>
</tr>
<tr>
<td>Error</td>
<td>116</td>
<td>280.3945</td>
<td>116</td>
</tr>
</tbody>
</table>

*a* Significant difference at .05 level of confidence

*b* No interaction
Table 7
Analysis of Variance for Sex and Skill Level X the Height Estimation, Width Estimation and Movement Satisfaction Scores

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Height Estimation</th>
<th>Width Estimation</th>
<th>Movement Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DF</td>
<td>MS</td>
<td>F</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>203.6306</td>
<td>0.7255</td>
</tr>
<tr>
<td>Skill level</td>
<td>1</td>
<td>392.4080</td>
<td>1.3982</td>
</tr>
<tr>
<td>Sex &amp; S.L.</td>
<td>1</td>
<td>208.8772</td>
<td>0.7442&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>116</td>
<td>280.6609</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Significant difference at .05 level of confidence

<sup>b</sup>No interaction
It is evident therefore that the significant differences between school A and school B, relative to the height estimation, width estimation, and movement satisfaction scores, are not affected by the grade, sex, and skill level variables.

The correlation coefficients tabulated in Table 8, (p. 53) reveal only one correlation that is significant at the .05 level. The measurements for height and width estimations for second grade girls in school A show an r = 0.5267 which is significant. However, since none of the other correlation coefficients for the height and width estimation measures show any significant correlation in either school A or school B, grade one or two, boys or girls, high or low skilled, it is felt that this may be a chance relationship and not indicative of any particular function, one with the other.

With regard to the other measures, since there are no significant relationships apparent between them with regard to either school, grade, sex or skill level, it seems that the measures of height estimation and movement satisfaction, and of width estimation and movement satisfaction are not in any way related. This indicates that none of these dependent variables are measuring similar functions with regard to the concept of the self. Each measure is apparently quite independent of the other. In respect to the height and width estimations this seems surprising, but for the movement satisfaction scale in relation to the other two it is perhaps more understandable. These factors will be considered further under the discussion which follows.
Table 8

Correlation Coefficients for the Height Estimation, Width Estimation and Movement Satisfaction Measures Relative to School, Grade, Sex and Skill Level Variables

<table>
<thead>
<tr>
<th>N</th>
<th>School</th>
<th>Grade</th>
<th>Sex</th>
<th>H and W</th>
<th>H and MSS</th>
<th>W and MSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>B</td>
<td>1</td>
<td>Boys</td>
<td>-0.1991</td>
<td>0.1862</td>
<td>-0.0296</td>
</tr>
<tr>
<td>20</td>
<td>B</td>
<td>1</td>
<td>Girls</td>
<td>0.1263</td>
<td>-0.0150</td>
<td>-0.3071</td>
</tr>
<tr>
<td>24</td>
<td>B</td>
<td>2</td>
<td>Boys</td>
<td>0.3797</td>
<td>-0.0664</td>
<td>-0.3124</td>
</tr>
<tr>
<td>27</td>
<td>B</td>
<td>2</td>
<td>Girls</td>
<td>-0.0998</td>
<td>0.0124</td>
<td>0.0222</td>
</tr>
<tr>
<td>19</td>
<td>A</td>
<td>1</td>
<td>Boys</td>
<td>-0.3778</td>
<td>0.1511</td>
<td>0.2232</td>
</tr>
<tr>
<td>29</td>
<td>A</td>
<td>1</td>
<td>Girls</td>
<td>-0.1299</td>
<td>-0.3479</td>
<td>0.0934</td>
</tr>
<tr>
<td>26</td>
<td>A</td>
<td>2</td>
<td>Boys</td>
<td>0.2131</td>
<td>-0.0400</td>
<td>0.1385</td>
</tr>
<tr>
<td>38</td>
<td>A</td>
<td>2</td>
<td>Girls</td>
<td>0.5267 (^a)</td>
<td>-0.3205</td>
<td>0.0075</td>
</tr>
<tr>
<td>60</td>
<td>A &amp; B</td>
<td></td>
<td>High Skill</td>
<td>-0.0461</td>
<td>-0.1860</td>
<td>-0.3471</td>
</tr>
<tr>
<td>60</td>
<td>A &amp; B</td>
<td></td>
<td>Low Skill</td>
<td>-0.1696</td>
<td>0.1346</td>
<td>0.0461</td>
</tr>
</tbody>
</table>

\(^a\)Significant at the .05 level of confidence
DISCUSSION

The analysis of the data has, up to this point, revealed that there is a significant difference between school A and school B relative to all three measures under consideration. These differences, significant at the .05 level of confidence, vary slightly according to the grade, sex and skill level groupings, with the height and width estimations sometimes varying between the .05 and .10 levels of confidence. The movement satisfaction measure, however, remains consistently at considerably less than the .01 level of confidence (P < .01) regardless of age, sex and skill level groupings. (Tables 1, 3, and 4).

As previously stated, with reference to Table 2, it can be seen that the means of the movement satisfaction scores for school A are consistently greater than those for school B. This indicates that the subjects in school B, generally speaking, have greater feelings of satisfaction concerning their own movement than those in school A. This finding may suggest that the differing programs of physical education contribute differently to the children's degree of satisfaction with their own movement. It may suggest that the basic movement program is safeguarding the children's feelings of satisfaction with relatively greater success than the activities oriented program. However, it is understood that certain uncontrolled variables, such as pre-school experiences, could be affecting these results. Therefore, further investigations are needed, with greater control of other variables, in order to explain this finding more fully.
With regard to the difference in height estimations, it can be seen, with reference to Table 2, that the mean scores for school B indicate greater accuracy, i.e. are nearer zero, than those for school A. This seems to indicate that school B subjects have a better articulated body image, relative to body dimensions, in the vertical dimensions than those of school A. It is interesting at this point to refer to Figures 1 and 2 (pp. 45-46) which reveal that (whereas) children in school A generally tend to underestimate their height, those in school B tend to over-estimate. It is suggested that this might indicate that those children in school B, who have a wider variety of experiences in their physical education program, with an emphasis on body and spatial awareness, not only are more accurate in height estimation, but also perhaps feel greater control over the environment and can be more expansive in incorporating more of the environment within their estimations. School A children on the other hand, as well as being less accurate in their height estimations, may feel more threatened by the environment, and therefore tend subconsciously to exclude it, resulting in under-estimations of height and extended height.

With regard to the difference in width estimations, by referring to Table 2 it can be seen that the mean scores for school A are more accurate than those for school B. This seems to indicate that school A has a better articulated body image relative to body dimensions, in the horizontal plane, than school B. However, when referring to Table 2, it is easy to see how very erratic the estimations were relative
to the width dimension when the mean scores were all well over thirty centimeters, i.e. there was an average thirty centimeter difference between the estimated and actual measurements. When the standard deviations, varying from 24.04 to 34.23 are added to this picture it is easy to see that the children are extremely unaware of this dimension of the body image. This was very evident upon examination of the raw data. Many scores show over a one hundred centimeters discrepancy between estimated and actual measures. This lack of awareness has been apparent in previous studies such as Woods’ (49) and suggest that the concept of width dimensions is not clearly established at this age, and this is a difficult idea for the children to cope with, resulting in gross over-estimation and inaccuracy. It is interesting to note, however, that the children in school B are consistent in their over-estimation of body dimensions as compared to school A. Even though school A subjects have grossly over-estimated their width, it can be seen from the raw data that those in school B have over-estimated more than school A, seemingly supporting the suggestion that the children are less threatened by and perhaps feel more control over the environment than those in school A.

As well as showing significant differences between schools relative to all three measures under investigation, the analysis of the data also revealed no significant differences between the grade, sex, and skill level variables regarding these same measures. This is of interest inasmuch as it would tend to comply with general educational
and developmental theories that differences between the sexes and grades at this age level in terms of behavior and interest are not so clearly differentiated as in later development. Each age and each sex covers such wide variations developmentally that differences are essentially individual, and not oriented to any particular groups or groupings within this young and comparatively limited age range.

Perhaps with regard to skill level this lack of significant differences does not meet with expectations. It might be thought that the highly skilled children would find greater satisfaction in movement and also, because of their higher skill and seemingly greater control of movement, have developed greater body awareness in terms of ability to estimate body dimensions. This is not revealed, however, in the analysis of data, and therefore it is assumed that actual skill level does not at this stage influence one's feelings concerning movement, nor contribute to the ability to estimate body dimensions more accurately.

When studying the analysis of data referring to correlations between the body image and movement concept measures used (Table 8), it is easy to see the lack of relationships between measures at an acceptable .05 level of confidence. The only correlation revealed by the analysis, at the .05 level, is that between the height and width measures of grade two girls in school A. Since the height and width measures of all seven other groupings showed no significant correlation it is assumed that no real importance can be attached to this finding.
Even the highly skilled, whose scores might be expected to reveal some relationships due to increased body and movement awareness, show no significant correlations between measures.

Since the estimations of the vertical and horizontal dimensions of the body might be expected to show some relationship, as they do involve a similar perceptual judgment relative to size, to propose some hypotheses concerning these results might be appropriate. First, it seems that perhaps the children have not yet reached a stage of cognitive development that can relate the right and left sides of the body sufficiently well to conceptualize a width measure, since the data show such gross inaccuracies relative to width estimations. This rationale seems to be supported by findings of psychologists such as Piaget and Werner, and is a topic referred to by Barsch (1, pp. 131-134) who discusses the coordination of the horizontal in children.

Perhaps the McFee Grid is not the best measuring instrument to use with this age group since the measure has to be estimated in two parts, one figure for one side of the body and another figure for the other side. A device such as Dillon's door-frame (24, 25) which represents the total width, and demands only the direct perception of same with no transposing of representative symbols to a page, might be easier for six and seven year olds to conceptualize. On the other hand, it is possible that there is a continuing tendency to over-estimate width measures due to the normal demands of existence continually reinforcing perceptual judgments relative to height to a far greater degree than
those relative to width. This would certainly seem true of a child's existence in a primarily adult-oriented world where everything is looked up at or climbed onto, in order to be able to see and reach.

The lack of relationships of the measures of height and width estimations with that of movement satisfaction, could possibly have been expected. Since the estimations of body dimensions primarily tap a more cognitive component of self, whereas the measure of movement satisfaction primarily taps an affective or attitudinal component of self, it would be hypothesized that they would not relate very closely.

These findings clearly demonstrate that at this early age no relationships between body concept, concerning estimation of body dimensions, and movement concept, concerning feelings of satisfaction with movement, seem to be established. Perhaps such relationships begin to emerge a little later in individual growth and development, as similar follow-up studies may reveal.
CHAPTER V

SUMMARY AND CONCLUSIONS

One of the primary goals in education at the present time is self-actualization of the individual. Among many other factors, reaching this goal necessitates the development of a positive self-concept. Since self-concept is one of the most important factors influencing behavior any educational program wishing to affect change in behavior, in the direction of self-actualization, must be concerned with this aspect of self.

A recent development in the area of elementary physical education has been the inclusion of a core program called "basic movement." This program is particularly concerned with providing children with successful experiences for the development of a positive self-concept relative to movement, and with developing self-motivation, self-determination, and self-discipline to lead to greater self-realization.

This study sought to explore the possible differences concerning certain aspects of self-concept between the outcomes of two differing programs of elementary physical education at the primary grade level. The differences between the basic movement and activities oriented programs were explored in relation to one measure of body image and one
measure of movement concept, using grade one and grade two children.

The literature published in the area of elementary physical education reveals a particular dearth of studies concerning primary grade children, with a void in the area of research which compares programs in terms of aspects of the self-concept.

Other than at the elementary level, many studies have been completed in the area of body image, revealing inconsistencies in terms of relationships between these various measures. However, many of these measures independently show quite significant relationships to the self-concept.

Few investigations have been completed in the area of movement concept; however, a fairly consistent pattern of relationship between body concept and movement concept seems to be developing in these studies. Nevertheless, the relationship between movement concept and self-concept seems to be questionable at this point, as shown by several conflicting results.

The problem of appropriate instruments seems to contribute to the lack of research with children under nine years of age. This problem was encountered in the present study and led to the development of a movement satisfaction scale for primary grade children; adapted from one in the process of development by Allen and Nelson. Together with the movement satisfaction scale, as the measure of movement concept, the estimation of body dimensions was selected as being an appropriate body image measure for six to eight year olds.
Two schools in Middletown, Ohio, were chosen; one exemplified a good basic movement program; the other a good activities oriented program of physical education. The first and second grade children in each school were used for the study. Testing was undertaken in two sessions. First, prior to the Easter vacation, the testing for body dimension estimates was completed in each school within the same week. After Easter vacation the movement satisfaction scale was given in each school, during two successive weeks. Additional data were collected from the physical education specialist in each school who classified the fifteen highest and fifteen lowest skilled children in each grade, according to certain specified criteria. Together with the school, grade, and sex variables, all these data were entered on coding sheets for computer processing.

The data were programmed at The Ohio State University Computer Center. Analysis of variance was used to determine differences between the two school populations in respect of height and width discrepancy scores, and movement satisfaction. Correlations were computed to determine relationships between these measures according to school, grade, sex, and skill level.

The hypothesis that there would be no significant difference between school A and school B in measures of movement satisfaction, body width estimates or body height estimates was rejected at the .05 level of confidence.

The hypothesis that there would be no significant relationships,
at the .05 level of confidence, among the measures of body height, body width, and movement satisfaction relative to the school, grade, sex, and skill level variables was not rejected.

Further investigation of the analysis of the data revealed the direction of the differences between the two schools, relative to the three measures under consideration. With regard to the movement satisfaction scores, school B students showed greater satisfaction with their own movement than those in school A. Concerning the height estimations, school B students were more accurate in their estimations than school A. Relative to width estimations, school A subjects were more accurate than school B, a reversal of the finding stated above. However, also regarding the estimations of body dimensions, it was noted that at least 70 per cent of the cases in school A underestimated both height and extended height, whereas school B students tended to over-estimate. Over-estimation of the width dimensions occurred in both schools, but school B over-estimated to a greater degree than school A. Study of the raw data showed gross inaccuracy, in general, relative to estimations of the horizontal dimensions, many inaccurate to a difference of one hundred centimeters.

CONCLUSIONS

Based on the data collected and analyzed in this study the following conclusions appear to be justified.
The statistical evidence indicates a significant difference in feelings towards their own movement between first and second grade children in a basic movement program of physical education and first and second grade children in an activities oriented program. The greater feelings of satisfaction in their own movement shown by those children in the basic movement program, indicating a more positive attitude toward their own movement, tend to justify the inclusion of this particular approach at the primary school level. Further studies with control of other possible contributing variables need to be undertaken, however, before it can be accepted that the basic movement program is the major factor contributing to this difference.

The data show a significant difference between height estimations of children in differing physical education programs. Children in the basic movement program tend to over-estimate their height but are more accurate than children in an activities oriented program who tend to under-estimate their height. From this evidence it would seem that children having basic movement—which provides for a very wide variety of experiences with an emphasis on body awareness and control, and which attempts to safeguard successful experiences—feel less threatened by, and more control over, their environment. Thus it may be assumed that they can be more expansive in their estimations of height and width, and include more of the environment in their judgments, whereas the children in the other program tend to exclude more of the environment as though it were more threatening.
The evidence concerning width estimations supports the above conclusion inasmuch as, although all the children tend to over-estimate in this dimension, the children in the basic movement program over-estimate to a greater degree. Any conclusions concerning the width estimations are clouded, however, by the gross inaccuracy of the children in both schools, relative to this dimension. The data indicate that children are not yet capable of making accurate perceptual judgments in this dimension. This inability may be related in some way to their stage of cognitive development. The possibility of the tools used for making horizontal estimations adding to the difficulty of making this judgment must, however, be considered.

The consistent lack of interaction between grade, sex, and skill level variables throughout the analysis of data appears to justify the conclusion that there is little difference between first and second grade children, between boys and girls, and between high and low skilled children relative to these measures. It is not until later than second grade that peer group approval, so often achieved by athletic prowess, becomes important. In grades one and two expectations relative to physical education, and movement in general, are not significantly different between boys and girls. The general developmental stage reached by first and second graders seems to span the total age range with wide variations within each grade level. All the above factors indicate that significant differences probably would not be evidenced between the various groupings.
Concerning relationships between the measures of height and width estimates, and movement satisfaction, the statistical evidence supports the conclusion that there are no relationships among these measures. This evidence supports the conclusion that children have difficulty in perceiving relative size in the horizontal dimension, leading to such inaccuracy that these measures show no relation to the manner in which they perceive size in the vertical dimension. With regard to relationships between the estimations of body dimensions and movement satisfaction it might be concluded that this result is perhaps not entirely unexpected since the former measure is primarily cognitively acquired, and the latter more affectively oriented. It might be noted that because such relationships do not seem to occur at this early age, it does not preclude such relationships from occurring at a later stage of development.

RECOMMENDATIONS

1. Even though the results were statistically significant, it is felt that replication of this study in both similar and in varying situations should be made. Then it should be possible to cross-validate the present findings, and to assess whether certain variables other than the physical education programs were the major contributing factors

2. Since only first and second grade subjects were used in this study, it would be of interest to find out whether the present findings
would continue to be evident in the other elementary school grades.

3. In order to establish what effect a basic movement program does have relative to the measures under investigation, a pre- and post-test design might be used in studying such a program over a certain length of time.

4. A longitudinal study could be undertaken to determine whether the differences and relationships between variables evidenced in this study maintain their relative status or show a change over time.

5. With the inclusion of a measure of self-concept, a study could be designed to determine whether the measures of body image and movement concept used are indeed related to self image as is assumed.

6. The need for a study to examine the relative appropriateness of instruments for measuring body dimension estimations with young children is evidenced by present difficulties with width estimations. This study may reveal whether it is indeed the tool, or whether it is perhaps the level of cognitive development of the child that affects the results.
TEST INSTRUCTIONS

The McPee Grid Test

Seat the subjects on the floor, facing the closed grid, as close as is feasible (about 5-10 feet). Using a sample of the grid, which is taped to the wall or blackboard, state the following:

We are going to play a kind of guessing game that I think you will find fun and interesting. You will be asked to guess the size of certain parts of your body. Your body size is how big you are.

Let me show you how the game will be played. Taped on the board is a small copy of what you will be using to guess your size. You can see that there are rows of black lines. These rows of lines make what is called a grid. There is a green number opposite every other line. You can see that there is not enough space to put a number for every line. When you are guessing your size, you may choose any one of the lines as being the one line that is closest to your size. It is possible that you may wish to choose a line that has a number beside it. (Indicate number 40 as an example, and explain the fact that two numbers, or digits, make the number that is used.) In this case you just write number 40 on your paper beside the mark that I tell you to use.

Now, if you want to choose a line that does not have a number, use the number of the line just below the one that you have chosen, and put an "M" after that number. "M" stands for the "middle" of two numbers. Let me show you what we will do. Supposing you choose this line to show how high your waist is. (Point to the line above number 40.) You will see that the number 40 is the one below your line, so you will write 40M on your score sheet. The waist height is not one of the ones you will be guessing, it was just used for practice.

Point to four different lines and ask them to call out what they would write on their sheets. Make sure that it is enough practice by observing their faces for their understanding.

*The use of the M lines was omitted due to the apparent difficulty the children had in understanding. This reduced the grid accuracy to four centimeters.
You can see that the lines are evenly spaced; the size of the spaces is not in inches. The numbers are not in any special order, and you will use the number just to show which line you chose as showing your size.

Now we will try the first part of the game. Remember that you must stay seated until the game is over. Put your head down between your knees with your eyes closed until the grid is ready. (Lower the appropriate grid. After all test administrators are away from the grid area, seated if possible, continue).

Alright, lift your head and look at the grid. (Grid for height estimates.)

Pretend that you are standing with your back against the grid so that your backbone is on the green line that runs up and down the grid. Pretend your feet are flat on the floor and your arms are straight down at your sides. Guess where you think the top of your head would be, and choose the line that is closest to the top of your head. Write the number of that line on your score sheet, beside the line that says number 1. (Appendix C, p. 81).

Is everyone finished?

Now pretend you are standing the same as before only with your arms stretched up over your head as high as you can reach. Choose the line that you think your fingers would reach to. Write the number of that line on your sheet beside the number 2.

Is everyone finished?

Now we will collect your score sheets and you will go to the other side of the room.

Grid for width estimates.

The lines on this grid will be used for three parts of the game. The three parts are: guessing how wide your shoulders are from here to here (show on self); how wide you can stretch your arms to the side (demonstrate span); and how wide you are at the hips (point to own hips).

All put your heads down between your knees, and stay seated with your eyes closed until the grid is ready.

Alright, lift your head and look at the grid. The green line is in the middle of the grid. Pretend you are standing with the middle of your back against the green line with both of your arms straight down by your sides. Guess where your shoulders will end on each side of you and choose the numbers on one side for one shoulder, and the numbers on the other side for the other shoulder. Write the numbers on your score sheet on the line numbered 3.
Now, again pretend that you are standing with your back against the grid, this time with both of your arms and hands stretched out from your shoulders, sideways. Using the numbers, choose a spot on each side of you that you think you will reach with each hand. Write the numbers for one side, and then the numbers for the other side on your score sheet, on the line numbered 4.

This time, still pretending that you are standing with your back to the grid, guess where your hips will end on each side of you. Choose the numbers for one side, and the numbers for the other side, and write them on the score sheet on the line beside number 5.

The Movement Satisfaction Scale

A series of drawings of Snoopy, very clearly showing five different emotions, graded from very happy to very sad, should be pinned to the board.

To the children.

Do you recognize these pictures? (Response from children.) Yes, of course you do; our friend Snoopy. Do you notice anything about Snoopy in these drawings? Yes, in some he is very happy, and in some he is sad; either looking as though he feels good about things, or badly about them. How does he look here? (Point to the first drawing.) Yes, very happy indeed doesn't he; and here? (Point to the second drawing.) Yes, still happy, but not very happy like the last one. In this one? (Point to the last drawing.) Oh yes, he is very unhappy isn't he, very sad looking; and here? (point to last but one) Mmmm - he is still sad, his ears are still drooping down aren't they? Is he as unhappy as the one before? No, he isn't is he. Now look at this drawing in the middle. (Point to the middle one.) He's not happy or sad, is he? In fact he looks as though he is not quite sure how he feels about things. His ears are half up and half down, aren't they? He really doesn't know how to feel about it all.

Can you really tell how Snoopy feels by these pictures? Yes, I think so too -- so now you are going to use them in a fun way; you are going to use them to show me how you feel about some of the things that you do.
You see the papers in front of you; they have Snoopy drawn on them just like these on the board. I am going to ask you some questions about things that you do, and you are to color the Snoopy who best shows how you feel about doing them.

Let's have a little practice with one or two questions before you start coloring on your paper.

If I ask you "How do you feel about eating ice-cream?", which one would you color? Yes, nearly all of you would color the very happy one; some might not feel quite so pleased about it and might color just the happy one, but I don't suppose anyone would color the very sad one!

Let's try another; "How do you feel about playing the piano?" Some of you may never have had the chance to try this, and so you have no idea how you would feel about it. If that is the case, which one would you color? Yes, this one in the middle, the one who is not really sure what to think about how he feels.

One more; "How do you feel about having to sit down all day long?" Mmmm -- most of you feel very unhappy when you have to sit still for a long time, don't you? I think you know how to do this now, don't you? Good. Just remember, you don't have to try to please anyone by your answer; there is no right or wrong answer; you are just showing how you feel about the question.

Write your name at the top of your paper. Put your marker under number one, and listen -- (start tape) -- now color the Snoopy who best shows how you feel about that.

Put your marker under two -- (etc.)
Movement Satisfaction Scale Items

1. How do you feel about bouncing a ball many times without stopping?
2. How do you feel about jumping very high?
3. How do you feel about picking very big things up and carrying them?
4. How do you feel about moving and stopping very suddenly?
5. How do you feel about climbing on very high things?
6. How do you feel about tagging games?
7. How do you feel about playing hard and using lots of energy?
8. How do you feel about stretching your body as far as you can?
9. How do you feel about balancing on one leg?
10. How do you feel about running very fast?
11. How do you feel about jumping over something about as high as your knee?
12. How do you feel about rolling over and over and over?
13. How do you feel about moving in a big space?
14. How do you feel about moving quickly around chairs, tables or people when you have to?
15. How do you feel about kicking a ball a long way?
16. How do you feel about having to move slowly all the time?
17. How do you feel about running for a very long time?
18. How do you feel about moving to music?
19. How do you feel about running backwards?
20. How do you feel about bouncing a ball quickly lots of times?
21. How do you feel about hanging from things?
22. How do you feel about throwing a ball for someone else to catch?
23. How do you feel about moving when your friends are watching you?
24. How do you feel about playing very hard and fast?
25. How do you feel about jumping on to something about as high as your knee?
26. How do you feel about moving very heavy things?
27. How do you feel about throwing and catching a ball?
28. How do you feel about moving sideways?
29. How do you feel about changing directions quickly when you are moving?
30. How do you feel about jumping a long way, when you get to run before you jump?
McFee Grid for Height Estimations
McFee Grid for Width Estimations
SAMPLE GRID

07
40
15
63
BOOKS


ARTICLES


UNPUBLISHED MATERIAL


