To the Graduate Council:

I am submitting herewith a thesis written by Patricia Cunningham Glass entitled "The Effect of Changes in Skill Level on Movement Satisfaction of Participants in Selected Physical Education Activity Classes." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Physical Education.

Nancy E. Lay

Nancy E. Lay, Major Professor

We have read this thesis
and recommend its acceptance:

William J. Morgan

Jean L. Lewis

Accepted for the Council:

L. Evans Peck

Vice Chancellor
Graduate Studies and Research

THE EFFECT OF CHANGES IN SKILL LEVEL ON MOVEMENT SATISFACTION OF PARTICIPANTS IN SELECTED PHYSICAL EDUCATION ACTIVITY CLASSES

A Thesis

Presented for the

Master of Science

Degree

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Patricia Cunningham Glass

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ABSTRACT

The purpose of this study was to determine whether changes in skill level of students participating in beginning soccer and racquetball classes would influence movement satisfaction attitudes. A second purpose was to determine differences between genders and among experimental and control groups on movement satisfaction scores.

The experimental subjects were students enrolled in elected beginning soccer and racquetball classes at The University of Tennessee, Knoxville. There were twenty-three students, fourteen males and nine females, participating in the study in each of the physical education classes. The control group included thirty students, fourteen males and sixteen females, enrolled in general psychology classes at The University of Tennessee, Knoxville.

Pre-test and post-test scores were obtained from the experimental subjects on the Nelson and Allen movement satisfaction scale and on motor skills tests for the respective sport of each class. The control group was pre- and post-tested only with the Nelson and Allen movement satisfaction scale.

Mean scores were obtained for each individual and also for the different groups and genders. The relationship between skill and movement satisfaction changes were found with the Pearson product moment correlation technique. The data were also analyzed with a three-way analysis of variance (group x gender x time of testing) with a repeated measure on the time of testing to determine group and gender differences.

Results indicated almost a zero correlation between changes in skill level and movement satisfaction. Although the experimental groups increased from pre- to post-testing for skill level and movement satisfaction, the differences were not found to be statistically significant. Also, no significant differences were found between control and experimental groups or between genders on movement satisfaction.

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CHAPTER I

INTRODUCTION

The majority of Americans today experience a considerably higher standard of living than did their ancestors two hundred years ago. This is due in part to the many technological advances made by science which have provided numerous labor saving devices. Machines have freed individuals from the physical labor once necessary to meet survival needs. A great deal of leisure time is now available so that people can pursue more enjoyable activities.

Overall, this increase in opportunities for seeking fulfilling activities has had a positive effect on society. A problem exists, however, in that individuals have chosen sedentary forms of recreation. This inactivity has contributed to related health problems such as hypertension, heart disease and lower back pain. Although the recent "fitness craze" has produced a more physically active population, the majority are in need of more personal motivation to seek fulfillment in physical activity.

The challenge, then, before physical educators continues to be one of developing and implementing programs to create active life-styles. One approach to achieving this goal is through enhancing the individual's movement satisfaction. Movement satisfaction is a positive feeling about one's perceived ability to move effectively in various situations. This attitude results from a subjective evaluation or judgment made while reflecting on movement experiences.

It is logical to assume that the more positive feelings one has regarding his or her own movement the more likely that individual is to become involved in sport and exercise. Therefore, improving movement satisfaction attitudes would contribute toward achieving the goal of motivating people to be active.

Another more traditional approach taken by physical educators to promote activity has been to develop sports skills in students. In order for individuals to participate in activity they must first have enough skill to enable them to become involved.

The two approaches, one focusing on attitudes about perceived ability and the other on ability itself, are related, and by improving skill level one would expect improvement in movement satisfaction. The relationship of skill level to other psychological variables related to movement satisfaction such as self-concept has been the topic of studies by Gall (1976), Dasch (1978), and Schultz (1973). Results of their research support the idea that enhanced skill level contributes to positive feelings about oneself. However, research involving improved skill level has not been conducted which deals with the more specific variable of movement satisfaction. Also, because psychological and social factors tend to influence one's perception of ability, movement satisfaction may not depend entirely on increased skill. Therefore, the present study was undertaken to examine the hypothesis that improvements in sports skills will result in a positive influence on movement satisfaction.

I. STATEMENT OF THE PROBLEM

This study was designed to determine whether changes in skill level of students participating in beginning soccer and racquetball classes would influence movement satisfaction attitudes. A second purpose was to determine differences between genders and among control and experimental groups on movement satisfaction scores.

II. LIMITATIONS

The following factors were considered limitations of the study:

1. The study was limited to students enrolled in elective physical education activity classes at The University of Tennessee, Knoxville.

2. The study was limited by the existence of other variables which may influence movement satisfaction scores that are not under the control of the experimenter such as the student's motivation to give accurate responses when completing the movement satisfaction scale.

3. The study was limited by the use of the Nelson and Allen movement satisfaction scale.

4. All students were not able to take the movement satisfaction scale under the same environmental conditions.

III. DEFINITION OF TERMS

The following terms are operationally defined:

1. Attitude. An enduring judgment or evaluation that makes a person ready to respond in a predictable manner and measured by a scale using fixed alternatives (Davids and Engen, 1975).

2. Body cathexis. The level of feeling of satisfaction or dissatisfaction with various parts and processes of the body (Secord and Jourard, 1953).

3. Body image. The individual's perception of his or her own physical self.

4. Movement concept. The individual's perception of his or her ability to control the body in movement.

5. Movement satisfaction. The positive feeling an individual has about his or her perceived ability to move effectively in various situations.

6. Movement satisfaction scale. A paper and pencil test designed by Nelson and Allen to determine an individual's attitude toward his or her ability to move. See Appendix A.

7. Self-concept. "The individual's sense of his or her own identity, worth, capabilities, and limitations" (Coleman and Hammen, 1974, p. 541).

IV. SIGNIFICANCE OF THE STUDY

Since the concept of movement satisfaction is relatively new, little research has been conducted to determine factors which contribute to the development of this attitude. In fact, no studies were found which were concerned with the relationship of changes in

skill level in a particular sport to one's feelings about being able to move. The present study examines such a relationship. Information provided in the study may give some insight into means of enhancing movement satisfaction. It is assumed that the more positive one feels about his or her own physical activity, the more likely a person is to be active.

CHAPTER II

REVIEW OF LITERATURE

In reviewing the literature very little research was found dealing directly with movement satisfaction. One explanation is that a reliable instrument for its measurement has only recently been available. The development of the movement satisfaction scale (Nelson and Allen, 1970) and interest in this attitude has evolved from the physical educator's attempts to understand self-concept and body image as they relate to physical activity. These aspects of personality and this interaction with skill acquisition form the theoretical basis for the study of movement satisfaction. Following a discussion of the theoretical basis for movement satisfaction, studies dealing specifically with this concept will be described.

I. THEORETICAL BASIS

Physical educators have historically expressed as one of their objectives the development of healthier personalities. They have maintained that participation in sport results in this outcome, and one reason for this is that such participation enhances self-concept. Research attempts which support this viewpoint, however, have met with only moderate success (Clower, 1979; Gall, 1976; Mauser, 1977).

Self-Concept

There are many conflicting self-concept theories which make the study of this aspect of personality somewhat difficult. While

self-concept is generally given a central role in personality theories, differences occur when explaining the development of self-concept and its influence on behavior. The most prominent theories of self were developed by (1) Freud, (2) the Neo-Freudians, (3) behaviorists or learning theorists, and (4) humanists. A brief description of their theories follows:

1. Freud's central concept of personality is based in the unconscious. This is the part of the mind of which we are totally unaware and is the center where human motivation occurs. He explains personality as three basic systems of motives: the id, ego and superego. The id consists of the unconscious instinctual drives which seek immediate gratification. The libido or pleasure seeking drive of the id is seen by Freud as a main motivator and is sexual in nature. Also connected with the id is a lesser instinct of destruction which is aggressive in nature. With its capacity to deal with reality, the id coordinates and directs behavior. The motives of the ego include self-enhancement along with a striving for status and power. The superego involves a moral code which is internalized from society and acts to control the id and ego motives. Personality development according to Freud, occurs in five psychosexual stages--the oral, anal, phallic, latency and finally the genital stage. Although Freud looks to early childhood experiences of conflict resolution as determining personality, his theories lack acknowledgement of cultural influences on personality development (Davids and Engen, 1975).

2. The Neo-Freudians, Erikson, White, Fromm, Horney and Sullivan, agree with many of Freud's theories of development and forms

of therapy. However, they differ from Freud by placing emphasis on the individual's need for relating to others, for loving and being loved without the connotations of sexual gratification. Besides emphasizing interpersonal relationships, they consider the need for independence or separateness from others as another aspect of personality. From this need emerges the self-concept with its motivational qualities expressed as needs for self-esteem and approval. The Neo-Freudians give greater importance to the positive forces in personality than does Freud and each has his or her own alternative to the libido theory. Horney agreed with Freud's concept of unconscious motivation and that basic anxiety is produced by childhood traumas, but she viewed the element of self-preservation from a threatening environment as the source of motivation for aggressive behavior (Davids and Engen, 1975). Erikson viewed personality development like Freud did as a series of psychosexual stages, only Erikson believed personality continues to form past adolescence in three more stages where love, care and wisdom develop (Davids and Engen, 1975). Sullivan also saw personality development as a series of stages and emphasized ongoing personality changes as an individual encounters others (Davids and Engen, 1975).

3. Behaviorists or learning theorists include Dollard and Miller and B. F. Skinner. Their objective is to form concepts of personality into models of behavior which lend themselves more easily to observation and experimentation. The learning theory of Dollard and Miller, while attempting to reinterpret Freudian concepts,

provided support for some of Freud's theories. The idea of internal motivational states according to Mussen (1973) is basic to Dollard and Miller's theory along with the key concepts of drive, cue, response, and reward. Most behavior develops through the learning and association of a variety of internal or external signals which creates stimulus-response connections, or more simply called habits. Skinner also emphasized the role of stimulus control and reinforcement as Dollard and Miller. However, he rejects Freud's assumption about the role of the unconscious mind (Mussen, 1973). Basic to Skinner's theory and supported by his research is the principle of behavior that reinforcement increases the probability of response. Behavior according to Skinner results from specific rewards which are received for making particular responses in the presence of certain environmental stimuli. Therefore, the individual's personality development, according to Skinner, relies on past interactions with the environment.

4. Humanistic theorists such as Rogers, Maslow, and Combs and Snygg study personality from the individual's point of view, whereas Freud, Neo-Freudians, and Behaviorists view the person from outside observed by others. Therefore, the humanists or actualization theorists place the greatest importance on the "self." They consider self-concept as the individual's view of himself or herself or the awareness of his or her own being. The individual's primary motive is stated as growth toward independence and self-fulfillment, although each theorist has a particular term for this. The healthy self-concept is based on one's own perceptions of life experiences and is developed

basically during early interaction with parents. Since the individual's environment throughout life is subject to change, the self-concept may be altered. This occurs when experiences are symbolized or processed allowing for hypotheses about reality to be formed and tested. This symbolization is a complex transaction, because experiences which are not in agreement with the self-concept are normally avoided, denied or distorted. According to humanistic self theorists, not only do experiences help shape the self-concept, but the individual's concepts or perceptions of himself or herself and the environment determine behavior (Allen and Thomas, 1977, pp. 135-136).

In summarizing self-concept theories, Allen and Thomas (1977) discuss the complexity of approaches to this area of personality. Two aspects of self-concept exist--self-knowledge or what a person thinks of himself or herself, and the affective domain or how a person feels of himself or herself. Besides these two ways of viewing oneself there are four different views or orientations of the self and they are as follows:

1. the actual self or who he or she is in reality,
2. the perceived self or who the person believes himself or herself to be,
3. the ideal self or who the individual would like to become, and
4. the self perceived by others or who the person is according to others.

In light of the combinations of the two approaches and the four possible orientations of self-concept, research may be confusing in

this area if a theoretical approach is not initially described and methodology is not consistent with basic assumptions.

Of all the self-concept theories summarized earlier the humanistic approach provides the best theoretical foundation for this study. Self-concept, as defined by the humanistic theory, is the individual's perception of himself or herself. The individual's viewpoint is also important in defining movement satisfaction which is the positive feeling about one's perceived ability to move well. Both concepts focus on observations made from within and described by the individual rather than from an outside observer describing the individual. Another aspect of the humanistic theory which gives support to this study is the assumption that experiences shape the self-concept. Although the formation of self-concept occurs during the early years of life, further alterations may be made. Assuming this is possible, then, an experience of improving one's ability to move will bring about an increase in that individual's movement satisfaction. This is the hypothesis to be examined by this study.

The basic aspects of the humanistic theory of self-concept and of movement satisfaction are similar, and by discussing body image, this relationship is clarified. Body image, a component of personality, is the individual's perception of his or her own physical self.

Body Image

The relationship of body image to self-concept has also been an area of research of interest to physical educators. In order to pursue this area in more precise terms, Secord and Jourard (1953)

developed an instrument to examine the college-age individual's body cathexis. This is defined as the level of feeling of satisfaction or dissatisfaction with various parts and processes of the body. Their hypothesis that feelings about the body are in agreement with feelings about the self was supported by Zion (1965) who demonstrated a significant linear relationship between self-concept and body concept. Darden (1972) also found body image and self-concept to be related when comparing those variables among various sports groups. It is interesting that although various instruments have been used to measure self-concept, only the Secord and Jourard body cathexis scale has been employed to examine body image.

Based on the theories which maintain that perceptions of self are based on experiences with self and others, researchers in physical education have investigated the interaction of self-concept and body image with motor performance. Schultz (1973) demonstrated a significant relationship between body concept and performance on a gross motor task, but only a mild trend for the relationship between self-concept and motor performance was shown. Another study indirectly dealing with performance indicated that women physical education majors and students who had participated in high school competitive athletic programs were found to have significantly higher self-concept scores than the general college student and the non-athletes in high school (Vincent, 1976). Similarly, Dasch (1978) demonstrated that trained dancers had significantly higher body-cathexis scores along with a greater locus of control orientation than non-dancers.

Movement Concept

A variable to consider which allows the study of personality to become more closely related and specific to movement, a medium central to physical education, is movement concept. As self-concept has been defined as the perception an individual has about himself or herself, movement concept may be similarly explained as the individual's perception of his or her ability to control the body in movement.

The first attempt at developing an instrument for testing movement concept was made by Doudlah through use of a Q-sort technique (Doudlah, 1962). It has become the most frequently used measuring device for studying movement concept. Nelson (1968) used the movement concept Q-sort adapted to scale form and Secord and Jourard's body cathexis scale with first-year college women and women physical education majors. She demonstrated that body cathexis, self-cathexis and movement concept are significantly related to one another. Self-regard, spontaneity and inner-directedness were also shown to be related to the three previously mentioned variables. Physical fitness averages and movement concept scores on the Q-sort test may be used in combination as predictors of overall self-esteem according to findings by Clower (1979). These studies give additional support for the physical educator's concern for enhancing personality.

II. MOVEMENT SATISFACTION

Whereas the Q-sort measure for movement concept evaluated one's perception or view of his or her movement ability, movement satisfaction is the positive feeling about that view. Nelson and Allen (1970)

altered Nelson's movement concept scale to evaluate students' feelings about their movement abilities. Because the movement concept scale was constructed for a specific and limited group, college freshwomen, Nelson and Allen also revised the movement concept scale to include both general and specific items related to movement ability. These changes made the movement satisfaction scale appropriate for both men and women between the ages of fourteen and twenty-one years.

The use of the movement satisfaction scale by researchers has been very limited. One reason is that the scale has not been widely accessible until recently published in a test and measurements textbook by Barrow and McGee (1978). In reviewing the literature only a few researchers were found to have used the scale in determining a relationship between movement satisfaction and other personality variables. The following indicate studies which used such a scale.

Hann (1973) compared experienced modern dancers to non-dancers in self-image, body image, movement satisfaction and kinesthetic arm positioning. The Secord and Jourard scale measured body image and a t-test was used to determine the differences between groups in each of the four tests administered. Although the results showed no significant difference between the means of dancers and non-dancers on self-cathexis or body image tests, dancers showed significantly more positive movement satisfaction scores than the non-dancers. The results of the movement satisfaction scores would support the belief that previous experience helps to determine the individual's feelings about the self. However, the apparent lack of a significant relationship between

self-concept and body-cathexis and previous dance experience is in conflict with the other findings reviewed. This appears to be additional evidence for the need to examine movement experiences in terms more relevant to the situation.

In order to fully understand the movement experience, consideration must be made of personality aspects which may influence the individual's perception of that experience. Anxiety has been one such factor in two studies reviewed. Rohaly (1972) found no strong relationships between movement participation, movement satisfaction, self-actualization and trait anxiety in first-year college women. However, in that study, individuals with high movement satisfaction demonstrated greater self-actualization than those with low movement satisfaction scores. Burton's study (1976) of the relationships between trait and state anxiety, movement satisfaction, and participation in physical education activities also revealed interesting results. Subjects in this investigation were male and female college students participating in classes of elementary methods, figure improvement, ballet, modern dance, golf and archery. A multivariate analysis of variance technique was used to analyze the pre- and post-test scores. The three activity groups which demonstrated significant positive gain scores on the movement satisfaction scale were the figure improvement, dance and elementary methods class. This was thought to occur because those classes emphasized sensory and cognitive awareness of one's movement. Movement satisfaction of the low trait anxiety group was found to be significantly higher than that

of the high trait anxiety group both at the beginning and the end of the classes. Therefore, as anxiety levels increased, the level of movement satisfaction tended to decrease.

III. SUMMARY OF RELATED LITERATURE

Research relating directly to movement satisfaction, the attitude one has about his or her ability to move well, has been very limited. Therefore, self-concept, body concept and movement concept were discussed to provide a theoretical basis. Interest in these areas by physical educators has been based on the notion that physical activity has an influence on personality development which in turn can determine to some extent behavior. The personality variables were seen to be interrelated and to have an influence on motor performance. Any definite conclusion cannot be made because of the variety of testing instruments and the many variables involved.

Movement satisfaction research deals with aspects of personality specifically related to physical activity. College women were most often the subjects for the three research studies in this area and one other study adapted the movement satisfaction scale for use with children. Involvement in dance and basic movement activities were found to improve movement satisfaction scores. Anxiety is a variable which has been shown to be related to one's movement satisfaction.

Because improving skills is a primary focus in physical education classes, the question of how this objective relates to enhancing movement satisfaction requires further study. Also, only limited

information is available on the types of activities which may provide greater opportunity for improving movement satisfaction. This study attempted to determine the extent to which improving skill in physical education classes contributed to movement satisfaction of students.

CHAPTER III

PROCEDURE

This study was conducted to determine whether changes in skill level of students participating in beginning soccer and racquetball classes influenced movement satisfaction attitudes. For the purpose of clarity this chapter is divided into the following four parts: Selection of Subjects, Selection of Testing Instruments, Testing Procedures, and Treatment of Data.

I. SELECTION OF SUBJECTS

All subjects were students, ages eighteen to twenty-one, enrolled at The University of Tennessee, Knoxville. There were forty experimental volunteers, twenty-six males and fourteen females, enrolled in the elected soccer class at the beginning of the quarter. However, there were only twenty-eight subjects, seventeen males and eleven females, who completed all parts of the pre- and post-tests. Initially there were thirty-four experimental volunteers, twenty-three males and eleven females, enrolled in the elected racquetball class, but only twenty-three, fourteen males and nine females, completed all sections of the tests. Those volunteers who did not take all parts of both the pre- and post-tests due to withdrawal from the class or absenteeism the testing day were not included in the final experimental group.

In order to allow for more accurate comparisons between groups, three males and two females from the soccer class were randomly selected to be excluded from the soccer group. This allowed both experimental groups to be balanced according to gender and number with twenty-three subjects in each group, fourteen males and nine females.

The control group subjects were volunteers, ages eighteen to twenty-one, enrolled in general psychology classes at The University of Tennessee, Knoxville. Because general psychology is required by most departments, these students were assumed to represent a random selection of college students of varying backgrounds. Originally, fifty volunteers, twenty-six males and twenty-four females, in the control group took the pre-test. There were twenty students, twelve males and eight females, who had dropped the course or were not present for post-testing. The final control group included thirty subjects, sixteen females and fourteen males.

II. SELECTION OF TESTING INSTRUMENTS

Movement Satisfaction Scale

The movement satisfaction scale used was developed by Nelson and Allen to determine attitudes about the physical abilities of men and women ages fourteen to twenty-one years. A copy of the scale may be found in Appendix A. Items for the scale were selected by a panel of judges consisting of psychologists and physical educators with expertise in their fields as well as in movement theory. The final

fifty item form was found to have a reliability rating of .95 when administered to 877 men and women between the ages of fourteen and twenty-one by Nelson and Allen (1970). No validity scores were available; however, the scale was chosen because it is the one usable test which measures movement satisfaction attitudes.

The movement satisfaction scale is a paper-and-pencil test that required approximately fifteen minutes to complete. A response is given to each statement according to a scale using a one for strong negative feelings to a five for strong positive feelings.

Skill Testing

For racquetball skill two tests were selected which measured basic skills in which most beginners in a class could improve. These tests were the ceiling ball test and a forehand wall rally test. The skills measured by the tests were included by the instructor as part of his instructional plan for the classes. The tests were also chosen because they could be administered in a relatively short period of time.

The ceiling ball test has been widely used to measure skill improvement in classes at The University of Tennessee, Knoxville. The object of this test was to hit ten consecutive ceiling balls with the student starting at center court and given three trials to complete the task. The number of legal ceiling balls hit consecutively out of ten was recorded as the score.

The forehand rally test used was part of the Reznik racquetball test described by Epperson (1977) and was found to provide a

reliable measurement of skill in racquetball for college men and women. The students were timed on a rally to the front wall for sixty seconds starting from behind the short line. The score recorded was the number of times the ball hit the front wall during the allotted time. If the student stepped across the short line that hit was not recorded.

Tests chosen for soccer skills tests were a soccer dribble test and a wall rally test (Kirkendall, 1980). In the dribble test the students were timed on a course between four cones placed three yards apart. The score was the time taken to dribble the ball from the starting line through the cones and back across the line. The wall volley test was a timed test; the number of hits by the ball on the designated four by eight feet space on the wall in twenty seconds was the recorded score. These two tests have been used widely in college soccer classes at The University of Tennessee, Knoxville.

III. TESTING PROCEDURES

Movement Satisfaction Scale

During the first class meeting of the spring quarter, 1981, volunteers from the racquetball class and the soccer class were secured for the study. After signing the informed consent statement (see Appendix B) the students completed the movement satisfaction scale. The instructions on the front of the scale were explained to the class, information on the informed consent statement re-emphasized, and the experimenter expressed the need for honest responses.

The control subjects, students enrolled in introductory psychology classes, were volunteers although extra credit points were

promised those completing the movement satisfaction scale again at the end of the quarter. The informed consent statement and movement satisfaction scale were administered either before or after the subjects' psychology classes at the end of the second week in spring quarter. Six of the volunteer subjects were not present when the scale was given, so they completed it at other designated times during the third week of the quarter. The control subjects were given the same initial instructions as the experimental groups. All subjects were administered the scale by the experimenter.

The post-test of the movement satisfaction scale was given to the subjects in the soccer and racquetball classes and the control subjects during the last week of the quarter. The same procedures were followed by the experimenter when administering the post-test as the pre-test.

Skills Testing

The skills tests for the racquetball class were given the second and third class meeting. The experimenter and the instructor administered the tests to the students one at a time with the students remaining on their assigned courts. The students were allowed to play games when not being tested.

The soccer skills tests were also given the second and third class meetings. The instructor administered the soccer wall volley test to half the class, counting and recording the scores himself, while an assistant timed and recorded scores on the dribble test for the other half of the class. Then the students changed testing

stations to take the tests not completed. The assistant was a graduate teaching assistant in physical education with experience in teaching soccer classes.

The post-test skills tests were administered again during the last week of the quarter after the post-test movement satisfaction scale was completed. The same procedures were followed during the post-testing as used during the pre-testing; the experimenter, instructor and assistant administered the same parts of the skills tests at the beginning and the end of the quarter.

Neither the soccer nor racquetball classes were taught by the investigator, but both classes were instructed by the same full-time staff member of The University of Tennessee, Knoxville.

IV. TREATMENT OF DATA

The standard answer sheets for the movement satisfaction scale were scored by the State Testing and Evaluation Center at The University of Tennessee, Knoxville. The data from the movement satisfaction scale and the skills tests were kept confidential by the experimenter.

One statistical procedure used was a three-way analysis of variance (class x gender x time of test) with repeated measure on time of test to determine the difference between groups. The Pearson product moment coefficient of correlation was also used to determine the relationship between movement satisfaction and skill competence.

CHAPTER IV

ANALYSIS OF THE DATA

This study was undertaken to determine whether improvements in sports skills result in a positive influence on movement satisfaction attitudes. Also of interest are group and gender differences.

The data collected from students in beginning soccer and racquetball classes include pre- and post-test scores on skills tests and on the movement satisfaction scale. Pre- and post-test scores were obtained on the movement satisfaction scale for the control group who were students in general psychology classes.

In this chapter the statistical procedures and results of analysis will be presented in the following three categories: 1) skill level, 2) movement satisfaction, and 3) correlation between movement satisfaction and skill level changes. A discussion of the findings concludes this chapter.

I. STATISTICAL PROCEDURES AND RESULTS OF ANALYSIS

Skill Level

The initial procedure used in analyzing skill test scores was a conversion of the different test scores to standard scores with a mean of fifty and range from zero to 100. This allowed a valid comparison to be made between the soccer and racquetball skill test scores. A mean of each student's two skill test scores was obtained by averaging the two types of tests given to each class. Therefore, each student

had a standardized score for pre-test and a standardized score for the post-test. Table I shows the mean scores and standard deviations for all groups for skill test scores.

A three-way analysis of variance with a repeated measure was used to determine skill level changes and differences in groups. A value of $p \leq .05$ was considered to be statistically significant. The three factors analyzed were class, sex and time of testing (pre or post) with time of testing as the repeated measure. This procedure revealed no significant difference between groups or any significant interactions of factors, although all groups increased from pre- to post-testing. The only comparison to approach significance was the time of testing variable with a value of $p \leq .0516$ (see Table II). The greatest amount of pre- to post-test change was made by the females in the soccer class (pre-test $M = 37.39$, post-test $M = 51.75$).

Movement Satisfaction

Obtaining an average score for the fifty item movement satisfaction scale for each subject on both pre- and post-tests was the first step in analyzing the movement satisfaction data. Group means were then obtained in preparation for the analysis of variance procedure.

Again a three-way analysis of variance with a repeated measure was used to determine group differences with a $p \leq .05$ being statistically significant. Movement satisfaction was the dependent variable and class or group, sex and time of testing were the independent variables or factors analyzed. The measure which was

TABLE I

MEANS AND STANDARD DEVIATIONS
OF SKILL LEVEL SCORES

Class	Sex		Time of Test	
			Pre	Post
Racquetball	Female	M.	40.31	41.02
		S.D.	10.46	8.39
	Male	M.	52.12	57.84
		S.D.	14.20	14.15
Soccer	Female	M.	37.39	51.75
		S.D.	19.61	10.53
	Male	M.	48.11	57.68
		S.D.	13.33	12.28

TABLE II

ANALYSIS OF VARIANCE: SKILL LEVEL

Source	DF	SS	MS	F	P
Model	3	856.39	285.46	1.43	0.25
Class X Prepost	1	798.92	798.92	4.02	0.515
Sex X Prepost	1	0.12	0.12	0.0	0.99
Error	42	8,355.37	198.94	--	--
Corrected Total	45	9,211.76	--	--	--

repeated was the time of testing, the pre-test being the first measure and post-test as the second. This analysis did not reveal a significant difference among groups although as with skill level, improvements were made from pre- to post-tests for males and females of all three groups. Table III shows movement satisfaction means for all groups and Table IV gives a summary of the three-way analysis of variance with repeated measure.

Correlation Between Skill Level and Movement Satisfaction Changes

The data used in this step of the analysis were difference scores which were found by subtracting pre-test from post-test scores for movement satisfaction and skill level. These difference scores were treated with the Pearson product moment correlation technique. The results of this technique when performed for each class separately revealed an r of 0.13 for the racquetball class and for the soccer class the r = -0.10. An overall r of -0.04 was found when the correlation was performed on the combined data from both classes. These values demonstrate a very weak relation between changes in skill level and movement satisfaction (see Table V).

II. DISCUSSION OF THE FINDINGS

One purpose of this study was to observe group and gender differences. This was performed by a three-way analysis of variance (class x sex x time of testing) with a repeated measure on time of testing. The overall result of this procedure did not reveal a significant difference between groups on skill level; however, when

TABLE III

MEANS AND STANDARD DEVIATIONS OF
MOVEMENT SATISFACTION SCORES

Class	Sex		Time of Test	
			Pre	Post
Racquetball	Female	M.	3.72	3.79
		S.D.	0.48	0.39
	Male	M.	3.90	4.12
		S.D.	0.48	0.43
Soccer	Female	M.	3.87	3.89
		S.D.	0.59	0.46
	Male	M.	3.79	3.97
		S.D.	0.49	0.40
Control	Female	M.	3.48	3.70
		S.D.	0.61	0.40
	Male	M.	3.58	3.74
		S.D.	0.57	0.64

TABLE IV

ANALYSIS OF VARIANCE: MOVEMENT SATISFACTION

Source	DF	SS	MS	F	P
Model	5	0.346	0.0	0.59	0.71
Class X Prepost	2	0.120	0.12	0.51	0.60
Sex X Prepost	1	0.126	0.126	1.31	0.37
Error	70	8.162	0.116	--	--
Corrected Total	75	8.510	--	--	--

TABLE V

CORRELATION BETWEEN SKILL LEVEL CHANGES
AND MOVEMENT SATISFACTION CHANGES

	Racquetball	Soccer	Total
r	0.13	-0.10	-0.04

considering only class differences the value obtained approached significance with a $p = .0516$. From the mean skill scores one can see that the soccer class improved more than the racquetball class and especially the females in the soccer class. Males were not seen to improve significantly more than females.

The movement satisfaction data were treated with the same statistical procedure as the skill level scores. Again the differences between the soccer, racquetball and control groups or genders were not statistically significant. Although the pre-test movement satisfaction scores for both the soccer and racquetball classes were higher than the control group pre-test scores, the improvements made by the control group were as much as those made by the experimental groups. This suggests that participation in the soccer and racquetball classes was not a significant factor in enhancing movement satisfaction.

The Pearson product moment correlation technique was used to determine whether improvements in sports skills result in a positive influence on movement satisfaction. The results of this procedure revealed practically a zero correlation. However, a point to consider is that although both skill scores and movement satisfaction scores increased from pre- to post-testing, the increases were not found to be statistically significant. Therefore, the correlation was based on improvements which were very small.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

The purpose of this study was to determine the effects of changes in skill level on the movement satisfaction of students enrolled in physical education activity classes. The experimental subjects were students enrolled in beginning soccer and racquetball classes at The University of Tennessee, Knoxville, twenty-six males and fourteen females in the soccer class and twenty-three males and eleven females in the racquetball class. The control group subjects, fourteen males and sixteen females, were students enrolled in general psychology classes at The University of Tennessee, Knoxville.

All subjects completed the Nelson and Allen movement satisfaction scale at the beginning and end of the school quarter. Also soccer and racquetball students were given skills tests for their respective sport both at the beginning and end of the quarter.

The skills test scores were converted to standard scores and a mean skill score was obtained for each subject for pre- and post-tests. Individual and group means were obtained for the fifty item movement satisfaction scale. In order for the experimental groups to be balanced, data for fourteen male and nine female subjects per group were randomly selected to be used in the analysis.

The Pearson product moment correlation procedure was performed to determine the correlation between changes in skill level and movement satisfaction. A three-way analysis of variance (class x sex x time of testing) with a repeated measure on the time of testing or pre-post factor was used to determine group differences.

The analysis of data revealed an overall correlation coefficient of -.04 between skill level and movement satisfaction change. The analysis of variance did not show any group differences by class, gender or time of testing to be significant. The differences in classes on skill level came close to significance with a level of $p = .0516$.

II. CONCLUSIONS

Based on this study, the following conclusions were drawn:

1. Participation in soccer or racquetball classes was not a significant factor in enhancing movement satisfaction attitudes. The differences between improvements in movement satisfaction for control group subjects and the experimental subjects were not statistically significant.

2. The variables of gender and type of activity class elected by the physical education students were not found to influence movement satisfaction.

III. RECOMMENDATIONS

1. Further studies are needed where greater improvements in skill level are developed.

2. Research dealing with movement ability and movement satisfaction should include other variables which may influence movement satisfaction such as anxiety and perception of ability improvements.

3. Future studies of this type should attempt to randomly select subjects who desire to participate in physical education classes for the experimental and control groups.

4. Additional studies should examine responses on items specific to the sport or activity involved in the study.

5. Research should investigate movement satisfaction at a more individual level rather than by groups.

BIBLIOGRAPHY

BIBLIOGRAPHY

Alderman, Kay M., Carbonari, Joseph, and Ryals, Kelvin. Success and satisfaction as a function of environmental constraint and origin-pawn feelings. Journal of Personality, 1979, 47, 196-213.

Allen, Dorothy J. Self-concept and the female participant. In Dorothy Harris (Ed.) Women and Sport: A National Research. Penn State HPER Series, 1972, 35-59.

Allen, Dorothy J. and Thomas, Carolyn E. The sport experience and the experiencing of self. In D. J. Allen and B. W. Fahey (Eds.) Being Human in Sport. Philadelphia: Lea and Febiger, 1977.

Baron, Robert A., Byrne, Donn, and Kantowitz, Barry H. Psychology: Understanding Behavior. Philadelphia: W. B. Saunders Company, 1977, 295-328.

Barrow, Harold M. and McGee, Rosemary. A Practical Approach to Measurement in Physical Education. Philadelphia: Lea and Febiger, 1979.

Burton, Elsie C. Relationship between trait and state anxiety, movement satisfaction, and participation in physical education activities. Research Quarterly, 1976, 47, 326-331.

Chaplin, James P. and Krawiec, T. S. Systems and Theories of Psychology. New York: Holt, Rinehart and Winston, Inc., 1974, 585-638.

Clower, Mary A. The relationships of self-concept, movement concept and physical fitness for college women (Doctoral dissertation, 1978, University of Georgia) Dissertation Abstracts International, 1979, 39, 1420-A. (University Microfilms Order No. 7901630).

Coleman, James C. and Hammen, Constance L. Contemporary Psychology and Effective Behavior. Scott, Foresman and Company: Glenview, Illinois, 1974.

Combs, Arthur W. and Snygg, Donald. The perceptual view of behavior. In James C. Coleman (Ed.) Personality Dynamics and Effective Behavior. Chicago: Scott, Foresman and Company, 1960.

Darden, Ellington. A comparison of body image and self-concept variables among various sport groups. Research Quarterly, 1972, 43, 7-15.

Dasch, Carol S. Relation of dance skills to body cathexis and locus of control orientation. Perceptual and Motor Skills, 1978, 46, 465-466.

Davids, Anthony and Engen, Trygg. Introductory Psychology. New York: Random House, Inc., 1975, 518.

Doudlah, Mary Anna. The relationship between self-concept, body image, and the movement-concept of college freshman women with low and average ability. Unpublished Master's thesis, University of North Carolina, 1962.

Epperson, Steven William. Validation of the Reznik Racquetball Test. Unpublished Master's thesis, Washington State University, 1977.

Gall, Steve J. Intramural sports related to selected measures of self-concept and motor skill development of 7th grade boys and girls. (Doctoral dissertation, 1976, Indiana University) Dissertation Abstracts International, 1976, 37, 2056-A (University Microfilms Order No. 76-22, 418).

Hann, Virginia Louise. A comparison of experienced modern dancers to non-dancers in self-image, body image, movement concept and kinesthetic arm positioning. Unpublished Master's thesis, Washington State University, 1973.

Kirkendall, Don R., Gruber, Joseph J., and Johnson, Robert E. Measurement and Evaluation for Physical Educators. Dubuque, Iowa: William C. Brown Company Publishers, 1980.

Lindgren, Henry Clay and Byrne, Donn. Psychology. New York: John Wiley and Sons, Inc., 1975, 325-341.

Mauser, Hans-Jurgen and Reynolds, Ronald P. Effects of a developmental physical activity program on childrens' body coordination and self-concept. Perceptual and Motor Skills, 1977, 44, 1057-1058.

Mussen, Paul, et al. Psychology, an Introduction. Lexington: D. C. Heath, 1973.

Nelson, Barbara A. The relationships between selected aspects of self-actualization, body and self-cathexis and two movement factors. (Doctoral dissertation, 1967, University of Michigan) Dissertation Abstracts, 1968, 28, 4898A-4899A (University Microfilms No. 68-7680).

Nelson, Barbara A. and Allen, Dorothy J. Scale for the appraisal of movement satisfaction. Perceptual and Motor Skills, 1970, 31, 795-800.

Rogers, Carl. A theory of personality and behavior. In James C. Coleman (Ed.). Personality Dynamics and Effective Behavior. Chicago: Scott, Foresman and Company, 1960.

Rohaly, Kathleen A. The relationships between movement participation, movement satisfaction, self-actualization, and trait anxiety in selected college freshmen women (Doctoral dissertation, 1971, Ohio State University) Dissertation Abstracts International, 1972, 32, 3766A (University Microfilms No. 72-4625).

Schultz, Larry E. The effects of body concept and self-concept on the performance of a gross motor task (Doctoral dissertation, 1973, University of Northern Colorado) Dissertation Abstracts International, 1973, 34, 2372A (University Microfilms No. 73-26, 517).

Secord, Paul F. and Jourard, Sidney. The appraisal of body-cathexis: body-cathexis and the self. Journal of Consulting Psychology, 1953, 17, 343-347.

Sorenson, Carol A. The relationship between motor performance in selected motor tasks and self-concept of first and sixth grade children. Unpublished Master's thesis, University of Kansas, 1978.

Tanner, Patricia. The relationships of selected measures of body image and movement concept to two types of programs of physical education in the primary grades. (Doctoral dissertation, Ohio State University, 1969). Dissertation Abstracts International, 1970, 30, 4264A - 4265A (University Microfilms No. 70-6895).

Vincent, Marilyn F. Comparison of self-concept of college women: athletes and physical education majors. Research Quarterly, 1976, 47, 218-225.

Zion, Leela. Body concept as it relates to self-concept. Research Quarterly, 1965, 36, 490-491.

APPENDICES

APPENDIX A

NELSON-ALLEN MOVEMENT SATISFACTION SCALE

FORM A

On the following pages are listed a number of statements concerning human movement which are related to your ability to move. Consider each item listed and fill in the number on the answer sheet for each item which best represents your feelings according to the following scale:

1. Have STRONG NEGATIVE feelings
   Fill in a 1 for those aspects of your movement about which you are unhappy, feel uncomfortable, or inadequate, and wish change could be made. For example, if you feel inadequate about your skill in jumping for height and wish change could be made, fill in the 1 after the item number for "jumping for height."
2. Have MODERATE NEGATIVE feelings
   Fill in a 2 for those aspects of your movement about which you have some negative feeling but not as strong as that in category 1 (see previous paragraph).
3. Have NO feeling one way or the other
   Fill in a 3 for those aspects of your movement about which you have no feeling at all. For example, if you have no feeling at all about your ability to move rapidly whenever you wish to, fill in a 3 after the number for that item.
4. Have MODERATE POSITIVE feelings
   Fill in a 4 for those aspects of your movement about which you have some positive feeling but not as strong as that in category 5 (see next paragraph).
5. Have STRONG POSITIVE feelings
   Fill in a 5 for those aspects of your movement about which you feel proud, happy, fortunate, or which give you a pleasant feeling when you think about them. For example, if you are proud of your physical activity, fill in the 5 after the number for that item.

1. Have strong negative feelings
2. Have moderate negative feelings
3. Have no feeling one way or the other
4. Have moderate positive feelings
5. Have strong positive feelings

IMPORTANT DIRECTIONS FOR MARKING ANSWERS ON ANSWER SHEET

Use black lead pencil only (#2 1/2 or softer).
Make heavy black marks that fill the circle completely.
Erase clearly any answer you wish to change.
Make no stray marks on this answer sheet.

ITEM

1. Pride in physical activity.
2. Other people's opinions about my ability to move well.
3. Ability to learn physical skills easily.
4. Ability to maintain my balance when moving.
5. Ability to participate in sport activity on a varsity level.
6. Ability to jump for height.
7. Ability to run with speed.
8. Ability to arise from a chair without feeling awkward or clumsy.
9. Ability to move freely without being inhibited.
10. Ability to pick up or carry things without dropping them.
11. Ability to move rapidly whenever I wish to.
12. Ability to run in a relaxed manner.
13. Ability to move the total body effectively in almost everything I do.
14. Ability to do cartwheels and gymnastic stunts.
15. Ability to learn new movements without becoming discouraged.
16. Confidence in moving well in almost all situations.
17. Ability to maintain my balance when stationary.
18. Ability to move with a feeling of lightness.
19. Ability to throw overarm for distance.
20. Ability to walk with poise.
21. Ability to sit down in a chair without being awkward.
22. Ability to balance on one leg.
23. Ability to move quickly around obstacles.
24. The way I move in general.
25. Ability to recover from an unbalanced position.
26. Ability to move in a direct manner when necessary.
27. Ability to participate in movement activities without fear of falling.
28. Ability to move to music.
29. Ability to stretch my body.
30. Ability to perform movements smoothly in most physical tasks I undertake.
31. Ability to do dance movements.
32. Ability to make graceful movements whenever I wish.
33. Ability to move better than my friends in most situations.
34. Ability to do as well as others on a sports item.
35. Ability to produce sudden movement.
36. Ability to perform physical skills effectively without unnecessary movements.
37. Carriage of my body when walking.
38. Ability to kick a stationary ball for distance.
39. Ability to express my feelings with movement.
40. Ability to judge distances between myself and others or myself and objects when we are moving.
41. Ability to reduce muscular tension at will.
42. Ability to reproduce a rhythmical beat with bodily movements.

ITEM (continued)

43. Grace in performing everyday movement activities.
44. Ability to relax at will.
45. Ability to stay on beat with the music when I dance.
46. Ability to get my arms and legs to work together when appropriate.
47. Ability to control slow movement whenever necessary.
48. Ability to perform very vigorous physical activities.
49. Ability to meet the physical demands of everyday living.
50. My skill in swimming.

APPENDIX B

INFORMED CONSENT

I hereby volunteer to participate in a research study to determine if changes in skill level influence movement satisfaction attitudes.

I confirm that my participation as a subject is entirely voluntary. No coercion of any kind has been used to obtain my cooperation. I understand that no portion of my grades or academic standing is dependent upon participation in this investigation.

I understand that I may withdraw my consent and terminate my participation without penalty at any time during the investigation.

I understand that I will have the opportunity to ask the experimenter any necessary questions. I understand that individual results will remain completely confidential.

I understand that the data for the research project, skills tests, rating scale and movement satisfaction scale, will not in any way be a part of my grade.

Date_____ Signature_____

Witness_____

Project Director: Patricia C. Glass
Office: 334, HPER Building
974-5111

VITA

Patricia Cunningham Glass was born in Cocoa, Florida on November 8, 1954 to Colonel and Mrs. James C. Cunningham.

She graduated from Tullahoma High School in Tullahoma, Tennessee in 1972. In June 1978, she received a Bachelor of Science degree in physical education from The University of Tennessee, Knoxville. She accepted a teaching assistantship at The University of Tennessee, Knoxville, in the School of Health, Physical Education, and Recreation, and began working toward a Master of Science degree in September 1980. She expects to receive her Master of Science degree in physical education in August 1982.

She plans to reside in Memphis, Tennessee with her husband, Brian A. Glass.