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CHANGE OF STUDENT ATTITUDES TOWARD PHYSICAL EDUCATION FOLLOWING ENROLLMENT IN A CONCEPTS PHYSICAL EDUCATION COURSE

Steven A. Underwood

A dissertation presented to the
Graduate Faculty of Middle Tennessee State Univesity
in partial fulfillment of the requirements
for the degree Doctor of Arts

August 1989

CHANGE OF STUDENT ATTITUDES TOWARD PHYSICAL EDUCATION FOLLOWING ENROLLMENT IN A CONCEPTS PHYSICAL EDUCATION COURSE

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ABSTRACT

CHANGE OF STUDENT ATTITUDES TOWARD PHYSICAL EDUCATION FOLLOWING ENROLLMENT IN A CONCEPTS PHYSICAL EDUCATION COURSE

Steven A. Underwood

The purpose of this study was to investigate the change in attitudes toward physical education for students who were enrolled in a one-semester, concepts-oriented physical education course at The University of Tennessee at Chattanooga. The experimental group consisted of 119 students enrolled in Physical Education 021, Concepts and Applications in Physical Education. Further, 128 students enrolled in Psychology 101, Introduction to Psychology, during the same term served as the control group for this investigation.

All students were administered the Wear Physical Education Attitude Inventory (Form A) as a pretest at the beginning of the semester and again as a posttest at the end of the semester. The five-point Likert Scale ranging from strongly agree to strongly disagree was used for scoring the 30-item questionnaire. The variables of phsyical, mental, social, and general were measured by the instrument.

The data were collected, coded, and prepared for computer analysis with the SPSS^{X} HP 3000 System being used to analyze the data. Analysis of Covariance and t-test were utilized to analyze change scores between and within the experimental and control groups based on sex and

classification for the four separate areas of the inventory. All hypotheses were tested at the .05 level of significance.

Results of the study were: (1) the control group showed no significant change of attitude, pretest to posttest, in any of the four areas (physical, social, emotional, general); (2) a significant difference was evident in the experimental group for the social, emotional, and general areas; (3) the experimental group's posttest scores demonstrated a significant improvement when compared with the posttest scores of the control group; (4) Physical Education 021 proved to generate a significantly higher positive effect in the social area for females when compared to males; and (5) Physical Education 021 provided a significantly greater effect upon upperclassmen (juniors and seniors) than on underclassmen (freshmen and sophomores) in the areas of physical, social, and emotional.

In conclusion, student attitudes toward physical education indicated positive changes as a result of being enrolled in Physical Education 021. Greater changes occurred for upperclassmen in the areas of social, emotional, and general and for females in the social area.

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CHAPTER 1

Plan of the Study

Introduction

Physical educators, as well as many others, have attempted to inform the public of the benefits of regular exercise. However, the facts are clear that, over the past decade, forty to forty-five percent of American adults have remained sedentary while only a suspected twenty percent of the population exercise enough to increase and maintain cardiovascular fitness (Dishman, 1986). Effective measures are needed to motivate persons to regard health-related behavior, such as exercise, as very important.

The literature has revealed that knowledge of the beneficial aspects of a specific behavior is not sufficient cause to change behavior. A more important factor in modifying behavior is one's attitude toward behavior. Although attitudes are not necessarily predictors of behavior under all circumstances, theorists assume that behavioral attitudes are usually found to be quite accurate predictors of subsequent actions. For example, Fishbein and Ajzen (1983) have recently shown that attitudes do predict behavior quite well if the attitude measured is congruent with the behavior to be predicted and is specific rather than general. As a general rule, individuals with positive

attitudes are expected to demonstrate favorable behaviors toward the attitude object, while negative attitudes are expected to produce unfavorable behaviors (Fishbein & Ajzen, 1983).

Attitudes are learned or acquired through experience; consequently, they may be influenced by teaching. For this reason, this study will endeavor to measure the effects of a concepts-oriented physical education course upon college students' attitudes toward physical education.

Statement of the Problem

This study will investigate the change in attitudes toward physical education for students who have completed a one-semester, concepts-oriented physical education course.

Purpose of the Study

The study will determine student attitudes toward physical education as measured by the Wear Attitude Inventory Scale. The specific purpose will be to determine the amount of change for various groups following a one-semester, concepts-oriented physical education course. Information sought will be useful in addressing current needs for change or may serve as a reinforcer for the course in question.

Limitations

The major limitations of the study were:

1. The exchange of information between the experimental and control groups was not controlled;

2. The subjects in the experimental group and in the control group were not matched individually for intelligence,

gender, age, socioeconomic status, or race (see Basic Assumption number 3); and

3. There was no attempt to control the activities of the subjects outside the classes.

Delimitations of the Study

The major delimitations of this study were:

1. The research for this investigation was restricted to one semester's instruction;

2. The sample was restricted to those students who were enrolled in a selected University of Tennessee at Chattanooga's HPER 021 class (experimental group) and a selected Psychology 101 class (control group);

3. The sample for this investigation was delimited to students at The University of Tennessee at Chattanooga; and

4. The sample was restricted to those students who were present for the pre-test and post-test.

Basic Assumptions

On the basis of the delimitations and limitations, several major assumptions were made relative to the study. They were:

1. The subjects in this study sample represented the demographic composition of the university student population;

2. The bias of the instructors of the course did not influence the students' attitudes toward physical education;

3. The uncontrolled variables (intelligence, age, socioeconomic status, and race) equally affected the control group and the experimental group scores; and

4. The college students are at an age which is critical in the development of positive attitudes toward physical education.

Significance of the Study

A major purpose of some college physical education courses is to motivate students to continue to exercise throughout their lives. One significant factor in determining whether a college student will continue to exercise after leaving college is the student's attitude toward physical education. Positive attitudes toward physical education are vital in effective motivation for present and future participation in physical activities (Clarke & Clarke, 1987).

The Health, Physical Education, and Recreation Department of The University of Tennessee at Chattanooga utilizes a concepts-oriented approach to physical education in the Physical Education 021 class. This course is a university requirement of all undergraduate students at The University of Tennessee at Chattanooga. The course is designed to introduce the students to basic concepts of physical education as well as to acquaint them with a number of activities which may be continued throughout their lifetime. In order to determine if the concepts-oriented approach to physical education (as used in The University of Tennessee at Chattanooga's Physical Education 021 class) is effective in motivating students to exercise beyond college, their attitudes toward physical education need to be

measured. Practical application of information produced by this study will be beneficial to administrators responsible for making decisions regarding the future direction of the course.

Definition of Terms

For the purpose of this study, the following definitions will be used:

Attitude - a persistent disposition to act either positively or negatively toward a person, group, object, situation, or value (Webster's, 1981).

Attitude change, negative - an attitude change in a subject or subjects in a direction not desired or expected by the investigator of the change (Theodorson & Theodorson, 1969).

Attitude change, positive - an attitude change in a subject or subjects in a direction desired or expected by the investigator of the change (Theodorson & Theodorson, 1969).

Attitude measurement - a technique for determining an individual's beliefs, feelings, or behavioral dispositions toward an object (Eysenck & Arnold, 1972).

Attitude scale - a device for quantitatively measuring the intensity with which an attitude is held (Theodorson & Theodorson, 1969).

Conceptual approach - a method of instruction in which students spend time receiving information in a lecture situation to understand the "how, what, and why" of physical activity and exercise in addition to experiencing and attempting physical activity and fitness (Pangrazi & Darst, 1985).

Hypotheses

Following enrollment in the concepts-oriented course and by administering the Pre- and Post-Wear Inventory, the following hypotheses will be tested:

1. There will be no difference in the change of attitudes toward physical education for students in the control group for any of the four areas;

2. There will be no difference in the change of attitudes toward physical education for students in the experimental group for any of the four areas;

3. There will be no difference in the change of attitudes between students enrolled in the concepts-oriented physical education course and the students not enrolled in the course for any of the four areas;

4. There will be no difference in the change of attitudes toward physical education between males and females for any of the four areas; and

5. There will be no difference in the change of attitudes toward physical education between underclassmen (freshmen and sophomores) and upperclassmen (juniors and seniors) for any of the four areas.

CHAPTER 2

Review of Literature

Recent trends in education have shifted toward a humanistic approach where curriculum emphasis is being focused on the individual. Developing appropriate attitudes among students is becoming an important process of many professional physical education programs.

Although recent trends promote the understanding and measurement of attitude, attitude by no means is a new concept. The concept of attitude has been part of our literature for over a century. According to Kenyon, a lack of unanimity regarding definition and measurement have plagued attempts to determine social attitudes (Kenyon, 1968).

An example of this is manifested by various definitions appearing in the Dictionary of Personality: Behavior and Adjustment Terms. It defines attitude as being

> an orientation toward or away from some subject, concept, or situation...a bodily posture showing, or meant to show, a mental state, emotion, or mood...the organization of beliefs and concepts (cognitive aspects), motives (affective aspects), and habits and acts (action or behavior aspects) which are associated with a particular object, or situation...a matter of feeling, acting, or thinking that shows one's disposition or opinion. (Heidenreich, 1968)

Allport (1954) synthesized many definitions from other theorists to compose his definition of attitude. His definition is stated as "a mental and neural state of

readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (p. 45).

For the purpose of this study, the definition of attitude as found in Webster's Third New International Dictionary (1981) will be used. It declares an attitude as being "a persistent disposition to act either positively or negatively toward a person, group, object, situation, or value" (p. 90). Regardless of the definition used, the element that different definitions have in common is that they are all trying to account for the simple fact that an individual exhibits consistent and predictable behavior in different situations and at different times.

Creating positive attitudes is important from a teaching and learning standpoint because it influences the motivational set of the learner. Acknowledging the importance of attitudes, Jerome Bruner stated that "interest must be aroused, attention sustained, and learning judged as worthwhile" if the physical education class is to have a positive impact on the student (Bruner, 1965). Attitude is believed to be the primary factor that determines the consequences of physical education.

Scales have been designed to measure student attitudes toward physical education. The most common type of attitude scale is probably the self-report subject-centered type. With this method individuals are asked to state, either through an interview or a questionnaire, their beliefs or feelings about an object, usually by expressing agreement or

disagreement with a set of items taken to be indicators of the underlying attitude of interest.

Some scales for measuring general physical education attitudes have surfaced as being more popular and practical. Wear's (1955) Attitude Scale is designed to measure changes in attitude toward physical education among college students as a result of being involved with a special experience. In 1945, Carr (1945) introduced a scale to measure the attitudes of high school girls toward physical education. Yet another popular scale for measuring attitudes toward physical education was proposed by Adams (1963). His scale intends to assess individual and group attitudes toward physical education.

Scales concerned with physical activity and physical fitness were devised by Kenyon, McPherson and Yuhasz, and Richardson. Kenyon (1968) constructed a scale which was composed of a six-dimensional model for characterizing physical activity. The McPherson-Yuhasz (1968) inventory appears to be a sensitive instrument for detecting attitudes of adult men toward exercise and physical activity. Employing modified Thurstone techniques, Richardson (1960) constructed two equivalent forms of an attitude scale around the topic "physical fitness and exercise" to be used for college students.

There are two methods which are most commonly used for scoring attitude scales. The first of these was developed by Thurstone and Chave (1929). This scoring method was based

on only two responses: agree and disagree, with marks given only for the agree statements. A numerical weighting system derived from judges' scores representing the average position of each statement along a favorable/unfavorable continuum ranging from 11 to 1 was assigned to various items in the scale. The final score was represented by the sum of the statement scores divided by the number of agree items checked.

The second most commonly used method of scoring attitude scales was developed by Likert (1932). Unlike the Thurstone and Chave method, this method required subjects to mark a response for each question. This method allowed for five degrees of response to each item in the inventory, ranging from strongly agree to strongly disagree. Positive worded statements would be socred 5-4-3-2-1. The most favorable responses would receive the highest scores with the least favorable response receiving the lowest score. The final score would be indicated by the sum of the value of all the responses of the items on the inventory.

In one of the earliest studies of attitude toward physical education, Alden (1932) attempted to determine factors in the required physical education program which were least attractive to college girls. One hundred girls from each of three schools representing different areas of the country were chosen as subjects for the study. Results from the study indicated that the factors most often mentioned as creating unfavorable attitudes were the inconvenience of

dressing and undressing and not being allowed enough time for dressing. Other factors found to create unfavorable attitudes include: a failure of secondary schools to develop elementary physical skills beyond the novice stage, inadequate time allotment for skill development, requirement to participate when not interested, and failure to differentiate between various skill levels.

Bullock and Alden (1933) administered a questionnaire to 192 freshman women enrolled in the physical education service courses at The University of Oregon. The questionnaire requested responses relative to three specific categories: home life and early play experiences, high school experiences, and current university physical education experience. Approximately 64 percent of the students indicated that they liked physical education in high school; whereas, 89 percent stated that they liked physical education at the university. These figures reflect that 25 percent of the students changed their attitudes from dislike to like since being enrolled in the physical education service courses. It should also be noted that only two students who liked physical education in high school disliked it at the university level.

In a similar study Mista (1968) measured the attitudes of college women toward their high school physical education programs. From this study she concluded that significant differences in attitudes toward physical education existed between the following groups of college freshman women: those earning athletic letters in high school had more

favorable attitudes than those who did not; those active in extra-school physical activity programs favored physical education over those who did not participate; those living on farms had more favorable attitudes than those who did not. Also, students from a high school graduating class of less than 75 had more favorable attitudes than those from a class larger than 140; those choosing teaching careers were more favorable than those choosing non-teaching careers. Those rating themselves above average in physical skills had the highest attitudes, and those who enjoyed their high school programs had more favorable attitudes than those who did not.

Other conclusions drawn from Mista's study were that no significant differences in attitude toward physical education existed between the following groups: those who did or did not engage in high school physical education; those who had a woman versus a man physical education teacher; those who took physical fitness tests in high school and those who did not; those who attended parochial schools and those who did not; those from small communities versus cities; and, finally, those who had more or less than four hours of physical education per week.

The intent of the study by Moyer, Mitchem, and Bell (1966) was to determine the attitude of college freshman and junior women toward the physical education program at Northern Illinois University. A Modified Wear Attitude Inventory was used to measure the women's attitudes. Findings revealed that there was a similar, highly favorable attitude toward

the physical education program demonstrated by both freshmen and juniors.

Vincent (1967) administered the Wear Attitude Inventory to analyze attitudes of 188 freshman and sophomore women enrolled in activity courses at The University of Georgia. She found a significant relationship at the .05 level between attitudes and success with the significance accrued to those students having more favorable attitudes. Attitudes directed toward the questions measuring physiological-physical values received the most favorable scores.

Zaichkowsky (1973) conducted a study to measure the attitude change of students enrolled in the required physical education programs at The University of Toledo and Bowling Green State University. Kenyon's multidimensional attitude scale was administered to 519 students at the beginning and end of the quarter, ten weeks apart. Conclusions drawn from the study showed that no significant change occurred after a ten week physical education class and that there is no significant relationship between the cognitive measure and the affective and behavioral components of attitude. Also, of the change that did occur, the type of program in which the subjects participated seemed to be the determining factor.

Kappes (1954) developed an attitude inventory composed of statements relative to physical education and the services rendered to students by a physical education department. The purpose of this inventory was to determine the attitudes of 90 freshman and sophomore women enrolled in physical

education classes at The University of Oklahoma. The inventory measured student interest and estimated skill levels for various activities, general attitudes toward physical education, as well as attitudes toward facilities, equipment, instruction, gym costume, organization, and administration. One finding of interest was that, if "carry-over" attitudes toward activity are to be achieved, students need to be given the opportunities to develop satisfying skills. Other findings indicated that, with respect to desire for instruction, estimated skill is less a determining factor than general attitude and that there is a lack of relationship between enjoyment of specific activities and general attitude toward physical education.

In an effort to evaluate the Physical Education program at The University of Michigan, Bell and Walters (1953) measured attitudes of college women. The sample consisted of all freshmen who were taking physical education and seniors who had taken required physical education at The University of Michigan. The questionnaire was administered to a total of 173 seniors and 684 freshmen. Attitudes were classified into three areas of contribution: social, physical, and mental health. Results revealed that students expressed a favorable response for each of the areas, indicating "agree" or "strongly agree" with the statements. The area of mental health had a more favorable response than any of the other areas with 84 percent of the seniors responding positively.

Campbell (1968) measured the attitudes of 199 college

males at The University of Texas, Austin. He used the Wear Physical Education Attitude Inventory which allowed for four categories to be measured: social, mental-emotional, physiological, and general. He concluded that the Wear Inventory was reliable and valid in determining attitudes toward physical education and that no significant variations existed in attitudes concerning physical education as predicted by the size of the high school attended, areas of academic interest, or the preference of physical activities.

Berger and Layne (1969) used the Wear Attitude Inventory Short Form, Berger's Predicted 1-RM Test, and the Barrow Motor Ability Test to determine whether attitude toward physical education among college males could be predicted from muscular strength and motor ability. Results indicated that attitude toward physical education as a course of study for college freshmen and sophomores can be predicted from muscular strength and motor ability although the predictive ability is low. Power rather than strength was found to be the more important component for predicting attitude toward physical education.

Coutts' (1973) study explored the relationship between certain social values and the attitudinal and behavioral dimensions of physical activity and sport. As part of the study, information was collected pertaining to the degree of maternal and paternal encouragement of sports participation and participation by the respondents and their parents. Subjects used in this study were 1895 students enrolled in

physical education classes at The State University of New York at Binghamton. He concluded that parental encouragement of sports participation resulted in positive attitudes toward physical education and more extensive participation in the various dimensions of physical activity.

Using the Wear Inventory, Short Form A, Brumbach and Cross (1968) measured the attitudes of all the male freshmen at The University of Oregon. They found the attitudes of these students to be more favorable toward physical education than the attitudes of comparable groups in two earlier studies using the same instrument. Student attitudes improved with the increased number of years that physical education was taken in high school. Also, if a student had attended a small high school with enrollment under 300, they were more apt to have a better attitude toward physical education than if they had attended a larger school.

Vincent (1967) attempted to predict the success of a student in physical education activity courses based on attitude, efficiency, and strength measurements. Attitudes were measured by the Wear Attitude Inventory, a closed circuit calorimetric technique used to calculate oxygen consumption measured efficiency, and strength was measured by dynamometers. The attitude measures had the highest significance of the three factors being measured. From this study it was concluded that the use of the attitude item alone was adequate for predicting success in physical education activities.

The effect of a special conditioning class upon student attitudes toward physical education was investigated by Brumbach (1968). The subjects for this study consisted of Oregon University students who were forced to take developmental physical education because of low physical fitness test scores administered at the beginning of the school year. At the beginning and end of the semester, these students completed the Short Form A of the Wear Inventory. The conditioning class influenced the students' attitudes favorably at the .05 level of significance.

As part of the same study, the investigator selected one class to determine if, by working in a somewhat different manner, a greater improvement could be made. The different emphasis for this class included the following actions: the students' names were involved in the conversation; each class member discussed individually with the instructor the student's state of physical fitness; the instructor participated in physical activities with the class; and a famous quotation pertaining to physical fitness was presented to the students every day. The study reflective of this one class was significant at the .01 level. Therefore, it may be concluded that special actions to improve the teacher/student rapport may bring about a significant improvement in student's attitudes toward physical education.

Keogh (1962) used the Wear Physical Education Attitude Inventory (Form A) to determine if attitudes toward general benefits of physical education differed among men and women

students. Undergraduates enrolled in coed instructional classes in volleyball, badminton, and archery at The University of California at Los Angeles served as subjects. The men and women differed very little on their responses for each of the 30 Wear items. The biggest conflict was in regard to the relative value of a physical education program in the curriculum.

In March of 1963, Keogh (1963) conducted a follow-up study by using a group interview questionnaire to measure extreme attitudes toward physical education. Subjects included fourteen men and twenty-one women who scored extremely low on the Wear Attitude Inventory. The study did not reveal a difference within the male/female groups. Although the low group offered some minimal support for the outcomes of physical education, they energetically questioned the value of physical education in the curriculum.

Busch (1981) used the Bem Sex Role Inventory and the Kenyon Attitude Toward Physical Activity Questionnaire to examine differences in interests and choices of females and males as they pertain to attitudes toward participation in physical education activity courses. It was also the intent of the study to determine the extent to which students select activity based on sex-role identity. Subjects for the study were 851 Oklahoma State University students enrolled in physical education activity courses. The study showed no significant differences in the attitudes toward physical activity of social experience, catharsis, and ascetics.

However, differences did occur in the attitudes toward physical activity for aesthetics, health and fitness, and the pursuit of vertigo.

Sepasi (1975) conducted a study using 240 randomly selected Michigan State University undergraduate students to determine students' attitudes toward physical activity in their university life. The students' attitudes toward six sub-domains of physical education were assessed by utilizing Kenyon's Attitude Toward Physical Activity Inventory, Form D. Results of the study indicated that female students strongly endorsed the value of physical activity as an aesthetic experience while male subjects ranked the pursuit of vertigo as most meaningful. Neither group favored physical activity as an ascetic experience, nor was any significant interaction found between the grade level and sex of the student respondents.

Corbin and Chevrette (1974) administered the Wear Attitude Scale (Form A) to 596 freshman students enrolled in lecture-laboratory physical education classes. The purpose of the study was to examine whether changes in attitude toward physical education occurred as a result of being enrolled in a lecture-laboratory physical education course. The course included one lecture and one laboratory session each week. A comparison of the four subscales of attitude scores revealed that freshmen in the lecture-laboratory increased their scores on the post-test "general" subscale, the "mental-emotional" subscale, and on the test total. The change on the "social" and "physiological-physical" subscales was not

significant. However, lack of a control group did not allow the conclusions to be attributed to the lecture-laboratory physical education class.

Mowatt, DePauw, and Hulac (1988) tested over 700 individuals at Northwest Land Grant University to determine differences in attitudes by gender, year in school, activity class, mini-lecture, and time. The survey instrument was composed of twenty statements to be rated on the five-point Likert scale. Statements were divided into the following three categories: general attitudes, physical education, and scientific basis. The survey was administered to all classes at the beginning and end of the semester.

Results from the data collected were analyzed by the above-mentioned categories: attitude, physical education, and scientific basis. In regard to attitude, generally, subjects "strongly disagreed" with the statement that maintaining good physical conditioning takes more effort than it is worth. Females significantly indicated that maintaining good physical condition was more worth the effort than did males. Other attitudes pointed out that most females and males exhibited no strong feelings regarding the statement that there are things more important in life than one's level of physical fitness. However, a significant gender difference that females "disagreed" on the statement more than the males was observed. Graduate students from the no-lecture pre-test group were more positive than the no-lecture pre-test seniors and pre-test juniors.

Several observations were made with regard to physical education's place in the school curriculum. First, post-test seniors tended to "disagree" with the practical benefit of physical education, while post-test sophomores and pre-test freshmen tended to have no opinion. Although in disagreement, the subjects receiving the lecture material indicated a slightly more positive attitude toward the practical benefit derived from physical education than the students not receiving lecture material.

Other data revealed subjects agreed that physical education should be offered at every grade level, with females favoring it more than males. Regardless of class, amount of lecture, or gender, students' responses to the question, "Should physical education be a required subject for grades 1 to 12?" ranged from "Don't Know" to "Agree." Also, regarding the statement that physical education should be one of the courses offered in the school program, students generally disagreed on the pre-test but changed to "strongly disagree" as a post-test score. Females were more positive than males in regard to physical activity classes being just as important as academic classes.

Analysis of data from the scientific bases area revealed that there was no significant difference between class, course, gender, time, or lecture in the responses related to physical activity as a stress reduction technique. On the average, students did "not agree" that exercise provided relief from stresses of everyday life. On the other hand,

females were significantly higher than males on agreeing that exercise is the best way to insure a youthful looking body, a higher quality of life, and good posture with a sturdy body throughout life. Last, although no differences were found by year in school, lecture, or gender to the statement that adults get all the exercise they need just doing normal activities, a significant difference did appear over time with the pre-test responses indicating "strongly disagree" and the post-test measuring "disagree."

Summary

In this chapter, attitude was defined and a brief description of its characteristices presented to the reader. However, the major portion of this chapter was devoted to a review of attitudinal studies conducted in the field of physical education. The results of these studies demonstrate the diversity found in this area of study. Differences of results were found to exist between the relationship of attitude and the following areas: success, demographic area, size of high school graduating class, fitness test items, enrollment years in physical education, gender, and school classification. In light of these findings, it may be assumed that the type of program, more than anything else, is the determining factor when assessing attitudes. Regardless of the cause of attitude development and change, it is apparent that more research is needed in this area of physical education.

CHAPTER 3

Methods

Selection of the Sample

Students enrolled in Physical Education 021, Concepts and Applications in Physical Education, during a semester term were included in the experimental group for this investigation. Since this is a university requirement and all University of Tennessee at Chattanooga students (excluding students over 25 years of age and those receiving medical excuses) must take this course to graduate, there is a good distribution of demographic groups in the course. The 119 students tested in this course served as a good representative of the entire university population. This group was composed of 59 males, of whom 39 were underclassmen and 20 upperclassmen. Females made up 60 members of this group with 33 being underclassment and 27 upperclassmen (see Appendix A).

Further, 128 students enrolled in Psychology 101, Introduction to Psychology, during the same term served as the control group for this investigation. This group was represented by 62 males and 66 females. The male group consisted of 35 underclassmen and 27 upperclassmen, while the female group included 42 underclassmen and 24 upperclassment (see Table 1 in Appendix A). Psychology 101 is a general education course at The University of Tennessee at

Chattanooga and is taken by a large number of university students each semester; therefore, the students in this course closely matched the demographics of the university student population.

The students involved in the study, in addition to answering a question regarding the Health Physical Education 021 course, provided the following information on the pre-test and post-test answer sheets: last four digits of social security number, age, major, gender, and classification (see Appendix B). In this way, anonymity of the students was ensured, confidentiality of the students was protected, and the investigator was able to compare individual attitude changes, if any.

Collection of Data

Description of the Instrument to be Used

The instrument used for this study was Wear's Physical Education Attitude Inventory (Form A) developed by Carlos L. Wear (see Appendix C). This instrument was selected because it is a scale designed to ascertain an objective assessment of shifts of attitude toward physical education as a result of special experiences in which the students might be involved. This scale was designed for a pre-test and a post-test for college level students. The variables of physical, mental, social, and general can be measured by using this instrument. It has been shown to demonstrate face validity as well as a reliability coefficient of .94.

The five-point Likert scale ranging from strongly agree

to strongly disagree was used for scoring the 30-item questionnaire. If the statement is worded positively, then the scores range from 5-4-3-2-1. The opposite is true for statements which are worded negatively (1-2-3-4-5). A score of 90 would reflect a totally neutral position. Also, the score of 3.0 for each question was regarded as the median. Therefore, scores above the median represent a positive attitude, and scores below the median represent a negative attitude toward physical education.

Pilot Study

As previously mentioned, the validity and reliability of the research instrument has previously been established for the research sample age group. However, the investigator submitted the specific scale used for this research to a particular group as a practice session. This was done to familiarize the investigator with the administration of the attitude scale.

The investigator administered the attitude inventory, using the test's designed instructions, to a pilot group of University of Tennessee at Chattanooga students who were not enrolled in either Health Physical Education 021 or Psychology 101. The investigator took note of the time taken by the students to complete the inventory. He also recorded any difficulty the students had in following the standardized directions or in reading the statements in the inventory. This information enabled the investigator to more efficiently administer the attitude inventory to the actual research sample.

Attitude Measurement (Pre-Test)

Before any testing was conducted, the investigator was granted permission from the Head of the Department of Health, Physical Education, and Recreation and from the Head of the Department of Psychology at The University of Tennessee at Chattanooga to use students enrolled in Physical Education 021 and Psychology 101 classes, respectively, as subjects for the investigation (see Appendices D and E). Within the first two weeks of the semester, the pre-test measurements for attitudes toward physical education were obtained by the investigator. The investigator met with the students in the control and experimental groups in their respective classes. Instructions for the inventory were read by the investigator before the questionnaire forms were administered to the students. This was done in an effort to discourage students from marking the answer sheet before they had listened to the instructions in their entirety. The Wear Physical Education Attitude Inventory (Form A) was then administered by the investigator in the individual sections of Health Physical Education 021 and Psychology 101. Each student was encouraged to work quickly and to complete the inventory.

The Instruction Phase

Following the attitude pre-test for all control and experimental group students, the students enrolled in HPER 021 received instruction in physical education via the concepts-oriented approach. A standard departmental syllabus designed for the course (see Appendix F) which states

objectives of the course, topics to be covered, and evaluative procedures was used by all instructors of the course. The instruction was done in a variety of settings depending on the nature of the activity involved (i.e., classroom for lecture, natatorium for swimming introduction, etc.). The class met twice per week, 50 minutes per class, for 15 weeks during the semester.

In contrast, the control group enrolled in Psychology 101 received no instruction in physical education during the semester. Any student enrolled in HPER 021 and PSY 101 or any student in PSY 101 who had previously been enrolled in HPER 021 was removed from the research sample.

Attitude Measurement (Post-Test)

The procedure used for the pre-test attitude measurement was replicated in the post-test measurements for both groups of students. The post-test was completed in the final two weeks of the semester.

Statistical Design

The data was collected, coded, and prepared for computer analysis at The University of Tennessee at Chattanooga Computer Center. The $SPSS^X$ HP 3000 System was used to analyze the data.

Before testing the hypotheses, the Υ values for the Pearson Correlation Coefficients were computed to test the instrument for internal reliability (see Table 2 in Appendix G). The Υ values for the four independent areas were: General Υ .818; Emotional Υ .781; Social Υ .706; and Physical

γ .638 (see Table 3 in Appendix H). A frequency test was then performed, and a total pretest score was computed for each subject identifying mean and standard deviation scores for total subjects on the four areas of the Inventory (see Tables 4 through 7 in Appendices I through L).

Two independent statistical procedures were used to determine if significant change in attitudes toward physical education occurred. For analysis of the control and experimental groups, two separate t-tests were used to measure if change of the mean occurred between pretest and posttest scores within each group. Analysis of variance was conducted on the pretest to check for initial group differences and interactions between groups (experimental and control), gender (male and female), and class (underclassmen and upperclassmen) before testing for Hypotheses III through V. Significant differences between groups existed; therefor, an analysis of covariance, with the pretest serving as the covariate, was used for testing the hypotheses. The Duncan Multiple Range Test was used to correctly adjust the means. All hypotheses were tested for significant difference at the .05 level on all four areas of the Inventory.

CHAPTER 4

Analysis of Data

The purpose of this study was to investigate student attitudes toward physical education as measured by the Wear Physical Education Attitude Inventory Scale (Form A). The variables of physical, mental, social, and general were measured by this instrument. The specific purpose was to determine the amount of change for various groups following a one-semester, concepts-oriented physical education class.

Students enrolled in HPER 021, Concepts and Applications in Physical Education, and Psychology 101, Introduction to Psychology, served as subjects in the experimental and control groups, respectively. Procedures for data collection consisted of three phases: Phase I, pretest administration of the Wear Inventory to all students; Phase II, 12 weeks of course instruction for students in the experimental group; and Phase III, posttest administration of the inventory to all students.

The data obtained from the tests were then evaluated to determine significant differences based on group, class, and gender for the four areas of the Inventory. Analysis of Covariance and t-tests were used to determine the significant differences for all hypotheses at the .05 level of significance.

Results

The results of the data analyses are presented separately for each of the five null hypotheses.

Hypothesis 1

There will be no difference in the change of attitudes toward physical education for students in the control group for any of the four areas.

Results of the study indicated no significant differences at the .05 level between pretest and posttest scores for the control group. The p values for the four areas were as follows: General .415, Emotional .310, Social .950, and Physical .071 (see Table 8). Therefore, the null hypothesis was accepted.

Table 8

Comparison of Wear Attitude Inventory Pretest and Posttest Mean Scores for the Control Group

Area	Pretest Mean	Posttest Mean	t Value	p Value
General	3.52	3.55	-.82	.415
Emotional	3.87	3.90	-1.02	.310
Social	3.85	3.85	-.06	.950
Physical	4.15	4.09	1.82	.071

*Significant at .05 level
df = 127

Hypothesis 2

There will be no difference in the change of attitudes toward physical education for students in the experimental group for any of the four areas.

Contrary to findings for that of the control group, the t-test did indicate significant change at the .05 level for the experimental group. Thus, the null hypothesis was rejected. The three areas of general, emotional, and social indicated significant change with respective p values being .002, .000, and .000. The only area not reporting significant change was the physical area with a p value of .130 (see Table 9). A comparison between experimental and control group change can be observed in Table 10 and Figure 1.

Table 9

Comparison of Wear Attitude Inventory Pretest and Posttest Mean Scores for the Experimental Group

Area	Pretest Mean (X)	Posttest Mean (X)	t Value	p Value
General	3.56	3.70	-3.13	.002*
Emotional	3.83	4.01	-5.29	.000*
Social	3.81	3.98	-3.84	.000*
Physical	4.17	4.23	-1.52	.130

*Significant at .05 level
df = 118

Table 10

Comparison Between Experimental and Control Groups Pretest and Posttest Change Scores

Group	Pretest $\bar{X}$	Posttest $\bar{X}$
Experimental	3.57	3.70
Control	3.52	3.55

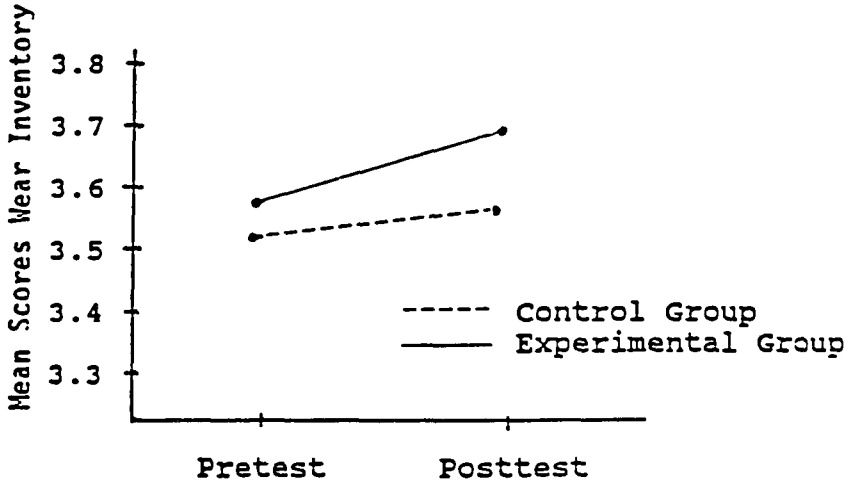

Figure 1

Group Pretest and Posttest Mean Change Scores

In an effort to determine whether Analysis of Variance or Analysis of Covariance should be used for the testing of Hypotheses 3-6, an Analysis of Variance was conducted on the pretest to measure for group differences and significant interactions. The results from the pretest indicated that there were no main effects at the .05 level for any of the

four areas of the inventory. Additionally, no significant interactions between group, gender, and class were found to exist for general and social areas. However, significant interactions were found to exist for the emotional and physical areas of the pretest. (Significant levels for each area can be seen in Tables 11-14, Appendices M through P.) Examination of the emotional pretest indicates significant interaction only between group and class (p Value .026). The control underclass (3.91) and the experimental upperclass (3.97) scored higher than the experimental underclass (3.74) and the control upperclass (3.80) (see Table 15 and Figure 2).

Table 15

Emotional Pretest Differences Between Group and Class Mean Scores

Group	Underclass $\bar{X}$	Upperclass $\bar{X}$
Experimental (N)	3.74 (72)	3.97 (47)
Control (N)	3.91 (77)	3.80 (51)

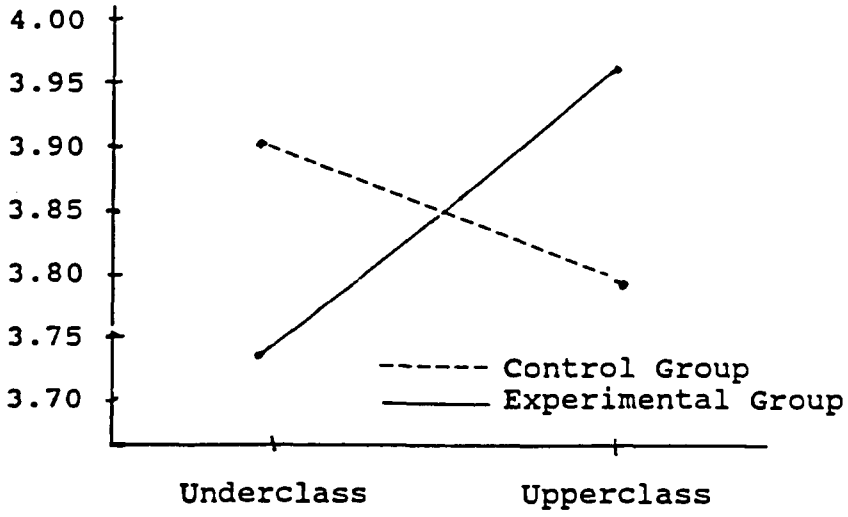

Figure 2

Emotional Mean Pretest Scores
for Group and Class

The results of the physical pretest also indicated a significant interaction only between group and class. The control underclass (4.25) and the experimental upperclass (4.32) scored higher than the control upperclass (4.00) and the experimental underclass (4.07) (see Table 16 and Figure 3).

Table 16

Physical Pretest Differences Between
Group and Class Mean Scores

Group	Underclass $\bar{X}$	Upperclass $\bar{X}$
Experimental (N)	4.07 (72)	4.32 (47)
Control (N)	4.25 (77)	4.00 (51)

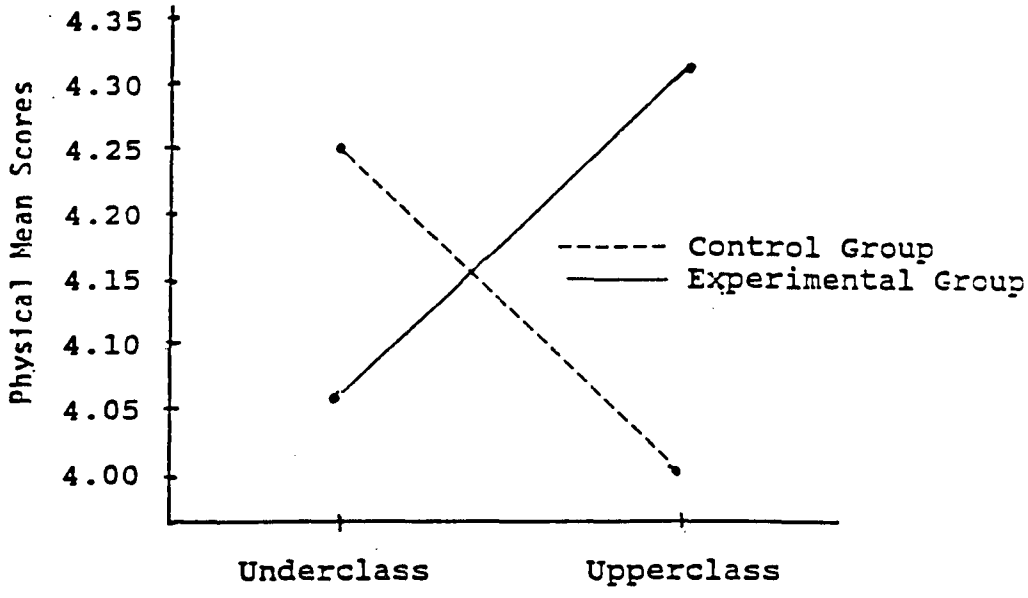

Figure 3

Physical Mean Pretest Scores
for Group and Class

Due to the fact that significant interactions did exist in two of the four areas, the pretest means were adjusted by use of the Duncan Multiple Range Test. The adjusted means for the experimental group were as follows: general 3.68, emotional 4.02, social 3.99, and physical 4.22. The control group's adjusted means were: general 3.57, emotional 3.89, social 3.84, and physical 4.09 (see Table 17). In reference to the statistical design, for Hypotheses 3 through 5, an Analysis of Covariance was used with the pretest serving as the covariate.

Table 17

Adjusted Group Means for the Four Areas of the Wear Inventory

Area	Experimental $\bar{X}$	Control $\bar{X}$
(N)	(119)	(128)
General	3.68	3.57
Emotional	4.02	3.89
Social	3.99	3.84

Hypothesis 3

There will be no difference in the change of attitudes toward physical education between students enrolled in the concepts-oriented physical education course and the students not enrolled in the course for any of the four areas.

The results of the Analysis of Covariance for the posttest indicated that main effects at the .05 significance level occurred for groups in all four areas of the inventory. The p values for the four areas were as follows: general .018, emotional .000, social .000, and physical .001 (see Table 18). Thus, the null hypothesis was rejected.

Hypothesis 4

There will be no difference in the change of attitudes toward physical education between males and females for any of the four areas.

Results revealed that there were no main effects based on gender analysis in the four areas. A significant

interaction between group and gender on the social scale with a p value of .024 was observed. The treatment (Health Physical Education 021 course) generated a more favorable effect on females than on males (see Table 19 and Figure 4). Therefore, the null hypothesis was rejected.

Table 18

Results of Test of Significance for Group for the Four Areas of the Wear Inventory

Source of Variation	Sum of Squares	df	Mean Square	F	p Value
General Group	.962	1	.962	5.68	.018*
Emotional Group	1.56	1	1.56	13.08	.000*
Social Group	2.05	1	2.05	12.79	.000*
Physical Group	1.41	1	1.41	10.46	.001*

*Significant at the .05 level

Table 19

Social Posttest Differences Between Group and Gender Adjusted Mean Scores

Group	Female $\bar{X}$	Male $\bar{X}$
Experimental (N)	4.05 (60)	3.94 (59)
Control (N)	3.79 (66)	3.89 (62)

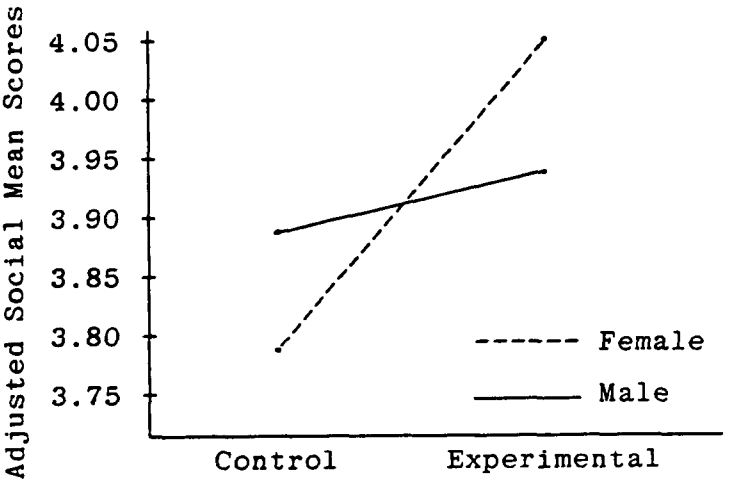

Figure 4

Adjusted Social Mean Posttest Scores for Group and Gender

Hypothesis 5

There will be no significant difference in the change of attitudes toward physical education between underclassmen (freshmen and sophomores) and upperclassmen (juniors and seniors) for any of the four areas.

Analysis of Covariance indicated no significant differences for class on the general, emotional, social, or physical scales. A significant interaction at the .05 level did appear, however, between group and class for three areas: emotional p value .013, social p value .002, and physical p value .002. The general area was the only area which failed to reject the hypothesis with a p value of .074. Treatment had a significantly greater effect on upperclassmen than on underclassmen (see Table 20 and Figures 5-7).

Table 20

Emotional, Social, and Physical Posttest Differences Between Group and Class Adjusted Mean Scores

Group	Emotional		Social		Physical	
	Under $\bar{X}$	Upper $\bar{X}$	Under $\bar{X}$	Upper $\bar{X}$	Under $\bar{X}$	Upper $\bar{X}$
Experimental (N)	3.98 (72)	4.10 (47)	3.93 (72)	4.09 (47)	4.14 (72)	4.35 (47)
Control (N)	3.93 (77)	3.82 (51)	3.91 (77)	3.74 (51)	4.14 (77)	4.04 (51)

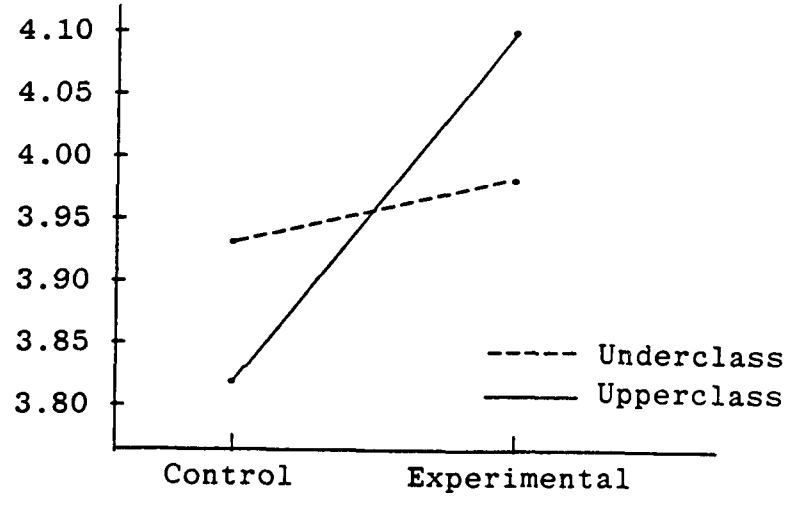

Figure 5

Adjusted Emotional Mean Posttest Scores for Group and Class

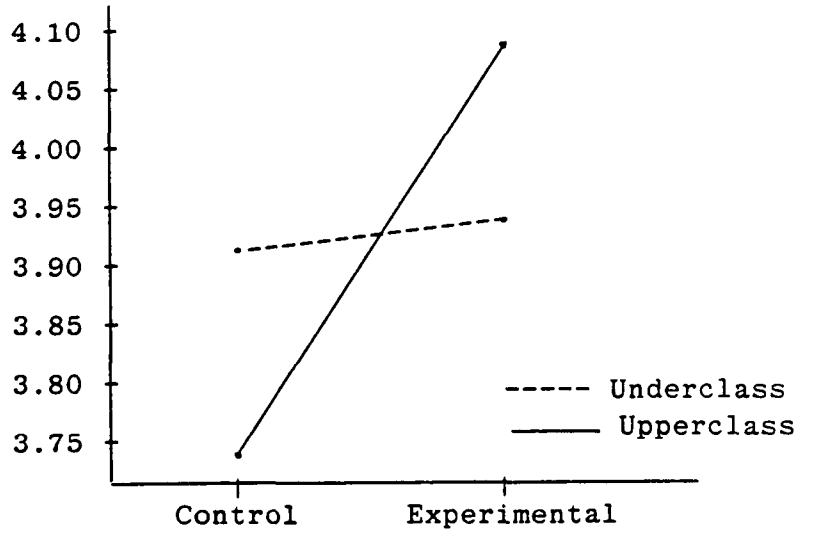

Figure 6

Adjusted Social Mean Posttest Scores for Group and Class

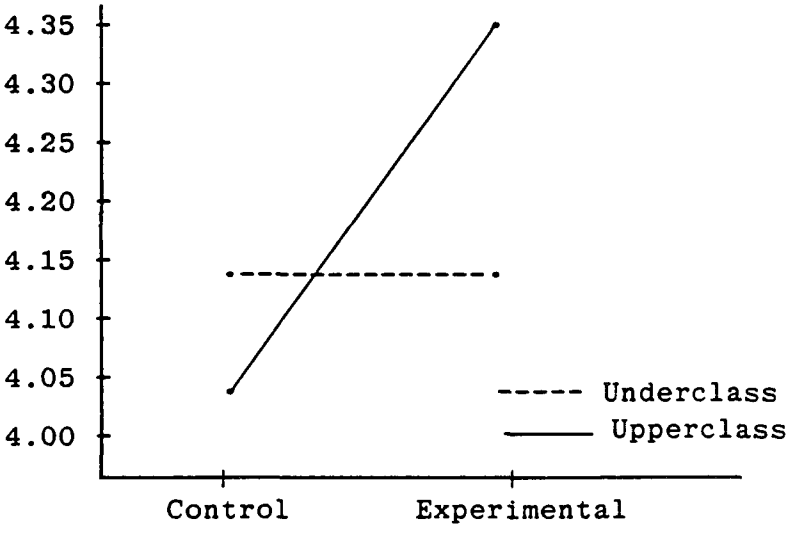

Figure 7

Adjusted Physical Mean Posttest Scores for Group and Class

CHAPTER 5

Summary, Conclusions, Recommendations

Summary

Attitude may be defined as being "a persistent disposition to act either positively or negatively toward a person, group, object, situation, or value" (Webster's, 1981). Creating positive attitudes is important from a teaching and learning standpoint because it influences the motivational set of the learner. Attitude is believed to be the primary factor which determines the consequences of physical education. According to a study by Vincent (1967), the measurement of a student's attitude alone can be used to adequately predict success in physical education activities. Since attitudes are learned or acquired through experience, they may be influenced by teaching.

The purpose of this study was to investigate the change in attitudes toward physical education for students who were enrolled in a one-semester, concepts-oriented physical education course at The University of Tennessee at Chattanooga. The experimental group consisted of 119 students enrolled in Physical Education 021, Concepts and Applications in Physical Education. Further, 128 students enrolled in Psychology 101, Introduction to Psychology, during the same term served as the control group for this investigation.

All students were administered the Wear Physical Education Attitude Inventory (Form A) as a pretest at the beginning of the semester and again as a posttest at the end of the semester. The five-point Likert Scale ranging from strongly agree to strongly disagree was used for scoring the 30-item questionnaire. The variables of physical, mental, social, and general were measured by the instrument.

The data were collected, coded, and prepared for computer analysis with the SPSS^X HP 3000 System being used to analyze the data. Analysis of Covariance and t-test were utilized to analyze change scores between and within the experimental and control groups based on sex and classification for the four separate areas of the inventory. All hypotheses were tested at the .05 level of significance.

Results of the study were: (1) the control group showed no significant change of attitude, pretest to posttest, in any of the four areas (physical, social, emotional, general); (2) a significant difference was evident in the experimental group for the social, emotional, and general areas; (3) the experimental group's posttest scores demonstrated a significant improvement when compared with the posttest scores of the control group; (4) Physical Education 021 proved to generate a significantly higher positive effect in the social area for females when compared to males; and (5) Physical Education 021 provided a significantly greater effect upon upperclassmen (juniors and seniors) than on underclassmen (freshmen and sophomores) in the areas of

physical, social, and emotional.

In an effort to understand the position of other investigations within this same area of study, comparisons and contrasts of related findings from similar investigations are noted. The results that the experimental group indicated significant changes for the areas of general, emotional, and social were consistent with findings by Corbin and Chevrette (1974) for the areas of general and emotional but not for the social area. A similar study by Brumbach (168) supported the findings of this study by indicating significant changes. In contrast, the study by Zaichkowsky (1973) did not support the findings of this study by finding no change following a physical education course.

Concerning the change of attitudes toward physical education between males and females, similar studies by Kenyon (1968) and Mowatt, DePauw, and Hulac (1988) supported the findings that a physical education course generated a more favorable effect on females than on males. Studies by Keogh (1962 and 1963) were not supportive and found no differences between males' and females' attitudes.

The results that a physical education class had a greater effect on upperclassmen than on underclassmen was supported by Mowatt, DePauw, and Hulac (1988). These findings were not supported by Sepasi (1975) or by Moyer, Mitchell, and Bell (1966).

Conclusions

Positive physical education attitudinal changes in the

social, emotional, and general attitudes were noted in the experimental group and not in the control group. Therefore, it was concluded that being enrolled in Physical Education 021 proved to be an effective tool for changing student attitudes toward physical education.

Higher positive values were noted for upperclassmen as compared with underclassmen in social, emotional, and general attitudes (all higher than the control group). Therefore, it was concluded that experiences in Physical Education 021 proved to be beneficial to both upperclassmen and underclassmen.

Stronger positive changes in the social area were noted for females as compared to males. Therefore, it was concluded that Physical Education 021 is of higher social value to the female than to her male counterpart.

Recommendations for Further Study

Additional research is needed within the area of physical education attitudes and the effects of a physical education course. The following suggestions for further research are offered to add to the body of knowledge within this area of study:

1. It is suggested that a similar study be conducted at different universities to determine the effectiveness of individual programs. The information gained from these studies will help justify or reject the theory concerning enrollment in a physical education class and attitudinal change.

2. A follow-up study should be conducted comparing the

success of students in each group while enrolled in physical education activity classes. This knowledge will be useful for advisors in the scheduling process.

3. A follow-up study should be conducted to measure the change in activity levels of the students who have completed Physical Education 021.

4. A follow-up study should be conducted to measure the change in fitness levels of the students who have completed Physical Education 021.

APPENDIX A

Table 1

Distribution of Student Sample by Group, Class, and Gender

Factor	Code	N	Factor	Code	N
Group	Experimental	119	Group	Control	128
Gender	Male	59	Gender	Male	62
Class	Under	39	Class	Under	35
Class	Upper	20	Class	Upper	27
Gender	Female	60	Gender	Female	66
Class	Under	33	Class	Under	42
Class	Upper	27	Class	Upper	24

APPENDIX D

HEALTH, PHYSICAL EDUCATION, AND RECREATION

DEPARTMENT HEAD'S PERMISSION AGREEMENT

TO: DR. ROBERT G. NORRED, DEPARTMENT HEAD, HPER

FROM: STEVE UNDERWOOD, INSTRUCTOR, HPER

RE: PERMISSION TO INCLUDE STUDENTS IN RESEARCH STUDY

Thank you for verbally agreeing to allow me to test a random sample of students in Physical Education 021 classes during the Fall semester, 1988. For purposes of written verificiation, could you please sign below indicating your continued willingness for your department's students to be involved in this attitudinal survey.

_____

Robert G. Norred, Department Head
Health, Physical Education and Recreation
The University of Tennessee at Chattanooga

APPENDIX E

PSYCHOLOGY DEPARTMENT HEAD'S PERMISSION AGREEMENT

TO: PAMELA REID, DEPARTMENT HEAD, PSYCHOLOGY

FROM: STEVE UNDERWOOD, INSTRUCTOR, HPER

RE: PERMISSION TO INCLUDE STUDENTS IN RESEARCH STUDY

Thank you for verbally agreeing to allow me to test a random sample of students in Psychology 101 classes during the Fall semester, 1988. For purposes of written verificiation, could you please sign below indicating your continued willingness for your department's students to be involved in this attitudinal survey.

_____

Pamela Reid, Department Head
Psychology
The University of Tennessee at Chattanooga

APPENDIX F

PHYSICAL EDUCATION 021
CONCEPTS AND APPLICATION IN PHYSICAL EDUCATION

TEXT

Getchell, Physical Fitness: A Way of Life, Macmillan.

COURSE DESCRIPTION

This course is designed to acquaint students with concepts, understandings, and values of physiological activity and its application to optimal healthful living.

COURSE OVERVIEW

Concepts and Application in Physical Education is designed to acquaint students with concepts, understandings, and values of psychological, physiological, sociological, motoristic, and aesthetic values of optimal living and its application to life itself. The format of concepts was to give the student a concise and factual presentation with regard to how, what, and why of physical activity and exercise.

COURSE OUTLINE

A. Concepts of Health, Physical Education, and Physiological Fitness
   1. Physiological Training Sessions
   2. Laboratory Experience

B. Concepts to Develop Physical Potential
   1. Lifetime Sports Presentations
   2. Laboratory Experiences

PERFORMANCE OBJECTIVES

A. Complete the following Physiological Testing
   1. Three 12-Minute Runs
   2. Evaluate Body Fatness
   3. Curl-up Test
   4. Flexibility Test

B. Complete Physical Fitness Profile

C. Participate in Lifetime Sport Activities

GRADE INDEX

A. Physiological Fitness
B. Knowledge and Understandings
C. Participation and Attendance

UNIFORM POLICY

An acceptable uniform is prescribed and required of all students by the instructor. The uniform is to be worn in all classes unless otherwise advised by the instructor.

GRADING SCALE

Participation and Attendance (8 points per meeting)	200 points
Cognitive Skills 2 written tests (100 points each)	200 points
Aerobic Fitness (Average of the two best 12-minute runs)	200 points 600 points

Scale

A 540 - 600 points
B 480 - 539 points
C 420 - 479 points
D 360 - 419 points
F below 360 points

NOTE: All make-up exams will be given the week of the final exam.

12-MINUTE RUN EVALUATION SCALE

MEN			WOMEN		
Distance (Miles)	Laps (Arena)	%	Distance (Miles)	Laps (Arena)	%
1.85	13.00	100	1.50	10.75	100
	12.75	98		10.50	95
	12.50	95			
1.71	12.25	92	1.43	10.25	90
	12.00	88		10.00	85
	11.75	84			
1.65	11.50	80	1.40	9.75	80
	11.25	78		9.50	78
	11.00	76		9.25	76
				8.75	74
	10.75	73		8.50	72
				8.25	71
1.50	10.50	70	1.10	7.75	70
	10.25	67		7.50	67
	10.00	63		7.25	63
1.40	9.75	60	1.00	7.00	60
	9.25	55		6.50	55
1.20	8.50	50	.80	5.75	50

APPENDIX G

Table 2

Pearson Correlation Coefficients of Scales for Pretest Scores

General	Emotional	Social	Physical
(.818)	.746	.757	.560
	(.781)	.726	.576
		(.706)	.643
			(.638)

(Reliabilities in parentheses)

APPENDIX H

Table 3

γ Values for the Four Areas of the Wear Inventory: General, Emotional, Social, and Physical

Area	γ Value
General	.818
Emotional	.781
Social	.706
Physical	.638

APPENDIX I

Table 4

Frequencies for General Pre-test Scores

Value	Frequency	Percent	Valid Percent	Cum Percent
1.60	2	.8	.8	.8
1.70	1	.4	.4	1.2
1.80	1	.4	.4	1.6
1.90	2	.8	.8	2.4
2.10	2	.8	.8	3.2
2.20	1	.4	.4	3.6
2.30	3	1.2	1.2	4.9
2.40	5	2.0	2.0	6.9
2.50	5	2.0	2.0	8.9
2.60	2	.8	.8	9.7
2.70	4	1.6	1.6	11.3
2.80	12	4.9	4.9	16.2
2.90	10	4.0	4.0	20.2
3.00	11	4.5	4.5	24.7
3.10	7	2.8	2.8	27.5
3.20	5	2.0	2.0	29.6
3.30	15	6.1	6.1	35.6
3.40	14	5.7	5.7	41.3
3.50	14	5.7	5.7	47.0
3.60	21	8.5	8.5	55.5
3.70	9	3.6	3.6	59.1
3.80	20	8.1	8.1	67.2
3.90	8	3.2	3.2	70.4
4.00	18	7.3	7.3	77.7
4.10	3	1.2	1.2	78.9
4.20	14	5.7	5.7	84.6
4.30	6	2.4	2.4	87.0
4.40	7	2.8	2.8	89.9
4.50	8	3.2	3.2	93.1
4.60	8	3.2	3.2	96.4
4.70	5	2.0	2.0	98.4
4.80	2	.8	.8	99.2
4.90	2	.8	.8	100.0
TOTAL	247	100.0	100.0	

Mean - 3.543; Std Dev - .685; Range - 3.30

APPENDIX J

Table 5

Frequencies for Emotional Pre-test Scores

Value	Frequency	Percent	Valid Percent	Cum Percent
2.00	3	1.2	1.2	1.2
2.29	3	1.2	1.2	2.4
2.43	2	.8	.8	3.2
2.57	5	2.0	2.0	5.3
2.71	2	.8	.8	6.1
2.86	2	.8	.8	6.9
3.00	7	2.8	2.8	9.7
3.14	4	1.6	1.6	11.3
3.29	7	2.8	2.8	14.2
3.43	12	4.9	4.9	19.0
3.57	26	10.5	10.5	29.6
3.71	24	9.7	9.7	39.3
3.86	35	14.2	14.2	53.4
4.00	33	13.4	13.4	66.8
4.14	29	11.7	11.7	78.5
4.29	10	4.0	4.0	82.6
4.43	14	5.7	5.7	88.3
4.57	10	4.0	4.0	92.3
4.71	8	3.2	3.2	95.5
4.86	4	1.6	1.6	97.2
5.00	7	2.8	2.8	100.0
TOTAL	247	100.0	100.0	

Mean - 3.851; Std Dev - .579; Range - 3.00

APPENDIX K

Table 6

Frequencies for Social Pre-test Scores

Value	Frequency	Percent	Valid Percent	Cum Percent
1.71	1	.4	.4	.8
2.14	1	.4	.4	1.2
2.29	3	1.2	1.2	1.6
2.57	2	.8	.8	2.4
2.71	4	1.6	1.6	3.2
2.86	4	1.6	1.6	3.6
3.00	14	5.7	5.7	4.9
3.14	3	1.2	1.2	6.9
3.29	7	2.8	2.8	8.9
3.43	12	4.9	4.9	9.7
3.57	22	8.9	8.9	11.3
3.71	23	9.3	9.3	16.2
3.86	34	13.8	13.8	20.2
4.00	44	17.8	17.8	24.7
4.14	23	9.3	9.3	27.5
4.29	12	4.9	4.9	29.6
4.43	16	6.5	6.5	35.6
4.57	10	4.0	4.0	41.3
4.71	6	2.4	2.4	47.0
4.86	1	.4	.4	55.5
5.00	5	2.0	2.0	100.0
TOTAL	247	100.0	100.0	

Mean - 3.831; Std Dev - .545; Range - 3.28

APPENDIX L

Table 7

Frequencies for Physical Pre-test Scores

Value	Frequency	Percent	Valid Percent	Cum Percent
2.67	1	.4	.4	.4
3.00	6	2.4	2.4	2.8
3.17	4	1.6	1.6	4.5
3.33	10	4.0	4.0	8.5
3.50	8	3.2	3.2	11.7
3.67	15	6.1	6.1	17.8
3.83	22	8.9	8.9	26.7
4.00	33	13.4	13.4	40.1
4.17	37	15.0	15.0	55.1
4.33	37	15.0	15.0	70.0
4.50	32	13.0	13.0	83.0
4.67	15	6.1	6.1	89.1
4.83	14	5.7	5.7	94.7
5.00	13	5.3	5.3	100.0
TOTAL	247	100.0	100.0	

Mean - 4.159; Std Dev - .475; Range - 2.33

APPENDIX M

Table 11

Analysis of Variance for General Area Pretest Scores by Group, Gender, and Class

Source of Variation	Sum of Squares	df	Mean Squares	F	p Value
Main Effects	.349	3	.116	.244	.865
Group	.106	1	.106	.223	.637
Gender	.067	1	.067	.140	.709
Class	.181	1	.181	.380	.538
2-Way Interactions	1.31	3	.436	.916	.434
Group Gender	.890	1	.890	.187	.173
Group Class	.245	1	.245	.516	.473
Gender Class	.143	1	.143	.300	.584
3-Way Interactions					
Group Gender Class	.175	1	.175	.368	.545

*Significant at .05 level

APPENDIX N

Table 12

Analysis of Variance for Emotional Area Pretest Scores by Group, Gender, and Class

Source of Variation	Sum of Squares	df	Mean Squares	F	p Value
Main Effects	.278	3	.093	.280	.840
Group	.077	1	.077	.232	.630
Gender	.051	1	.051	.154	.695
Class	.154	1	.154	.465	.496
2-Way Interactions	3.00	3	1.00	3.02	.030
Group Gender	1.21	1	1.21	3.65	.057
Group Class	1.66	1	1.66	5.02	.026*
Gender Class	.05	1	.05	.149	.699
3-Way Interactions					
Group Gender Class	.125	1	.125	.378	.539

*Significant at .05 level

APPENDIX O

Table 13

Analysis of Variance for Social Area Pretest Scores by Group, Gender, and Class

Source of Variation	Sum of Squares	df	Mean Squares	F	p Value
Main Effects	.092	3	.031	.100	.960
Group	.077	1	.077	.254	.614
Gender	.008	1	.008	.026	.873
Class	.006	1	.006	.021	.885
2-Way Interactions	.327	3	.109	.359	.783
Group Gender	.036	1	.036	.119	.730
Group Class	.284	1	.284	.934	.335
Gender Class	.001	1	.001	.003	.957
3-Way Interactions					
Group Gender Class	.106	1	.106	.348	.556

*Significant at .05 level

APPENDIX P

Table 14

Analysis of Variance for Physical Area Pretest Scores by Group, Gender, and Class

Source of Variation	Sum of Squares	df	Mean Squares	F	p Value
Main Effects	.201	3	.067	.310	.818
Group	.022	1	.022	.102	.750
Gender	.167	1	.167	.776	.379
Class	.014	1	.014	.067	.797
2-Way Interactions	3.59	3	1.19	5.54	.001
Group Gender	.023	1	.023	.105	.747
Group Class	3.54	1	3.54	16.41	.000*
Gender Class	.017	1	.017	.080	.777
3-Way Interactions					
Group Gender Class	.208	1	.208	.961	.328

*Significant at .05 level

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