This is to certify that the

thesis entitled

THE EFFECT OF VALUE-LADEN CURRICULUM
MODULES ON SELECTED AFFECTIVE VARIABLES
FOR UNDERGRADUATE PHYSICAL EDUCATION MAJORS

presented by

Theodore K. Comden

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Physical Education

Philip L. Reuschlein
Major professor

Date February 20, 1980

THE EFFECT OF VALUE-LADEN CURRICULUM MODULES ON SELECTED AFFECTIVE VARIABLES FOR UNDERGRADUATE PHYSICAL EDUCATION MAJORS

By

Theodore K. Comden

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Health, Physical Education
and Recreation

1980

ABSTRACT

THE EFFECT OF VALUE-LADEN CURRICULUM MODULES ON SELECTED AFFECTIVE VARIABLES FOR UNDERGRADUATE PHYSICAL EDUCATION MAJORS

By

Theodore K. Comden

Twenty-nine male and female undergraduate physical education majors enrolled in the same junior-level course at Michigan State University completed one self-administered instructional module each week for six weeks. By random assignment, sixteen of the subjects received experimental value-laden modules designed to convey a positive message about physical education. Thirteen subjects received control modules which were identical in form but contained reading material which was not value-laden. The completion of the modules was not part of the course requirement, so therefore it was essentially voluntary.

Posttest surveys were administered to collect data on two dependent variables, namely, attitude toward physical education as an activity course, and commitment to the profession of teaching physical education. The Wear Inventory (Wear 1951) was employed to measure the former attitude, and a Professional Opinion Survey was developed as a part of this study to assess the latter variable. The Professional Opinion Survey was concluded to be a valid and reliable

instrument for measuring the level of commitment to teaching physical education.

The data were analyzed using the SPSS Crosstabs nonparametric program to investigate the effect of the experimental treatment and sex upon the dependent variables. The corrected Chi Square statistic indicated no significant systematic relationship between the survey scores and the completion of the value-laden modules. The asymmetric lambda statistics revealed the strongest association to be between the Wear Inventory scores and sex when calculated for all forty-five students (22 males and 23 females) who took the posttest.

It is recommended that further research be conducted in which the completion of the value-laden curriculum modules be a part of course requirements for subjects. More active classroom strategies might also replace the self-administered paper and pencil responses required in this study.

To
My Wife,
Joanna
and to
Mark, Tim
and
Kelly

ACKNOWLEDGMENTS

I wish to thank Dr. Philip L. Reuschlein for his assistance with this research project from proposal through defense. Appreciation is also expressed to Dr. William Heusner, Dr. Gale Mikles and Dr. Ted Ward for serving on the Guidance Committee, and for being stimulating teachers.

The cooperation of Kwok-Wai Ho was most helpful during the time his students were participating as subjects in the study. Herb Olson's assistance in the disguised collection of data was also invaluable.

A special word of appreciation is due Karen Van Horn for her faithful assistance in typing the preliminary and final copies.

Finally, my sincere personal thanks goes to Dr. Harry F. Anderson, Professor Emeritus at Roberts Wesleyan College, who has served for twenty years as a model professor, interested scholar and supportive father-in-law.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

THE PROBLEM

The interest of educators in attitude and attitude change is not a recent phenomenon. The personal experiences and observations of many teachers suggest the importance of attitude as a factor in learning and as an objective of learning. Although the term attitude has been a part of the psychological literature for over one hundred years (Kenyon 1968a), several developments during the last fifty years have created a favorable climate for attitude research in the area of physical education.

Firstly, attitude has been defined adequately and consistently for use as a psychosociological unit of observation (Allport 1935). Secondly, Thurstone (1928) and Likert (1928) pioneered the development of instruments to reliably assess and score attitudes. Over a twenty-year period, the work of Remmers (1934, 1954) was also important for attitude theory and instrumentation. Thirdly, specific instruments to measure attitudes toward physical education and physical activity were developed by Wear (1951) and Kenyon (1968).

Among the questions associated with attitude research in general, are two that appear to be most important. First is the problem of valid measurement which has been discussed by Likert (1928) to the apparent satisfaction of those in

social-psychological and educational research. The second problem pertains to the relationship between attitudes and behavior. In formulating a taxonomy of educational objectives in the affective domain, Krathwohl and his colleagues (1964) suggested the need for attitudinal changes in students so that other long and short range goals of education could be realized. The current interest in affective outcomes at all educational levels may be indicative of the wide acceptance of Krathwohl's (1964, p. 32) statement that the end product of internalization ideally is the end product of education, namely, intrinsic motivation toward desired behavior.

The implied relationship between attitude and behavior is evident in many definitions of attitude. Allport (1935) summarized fifteen separate definitions of attitude and indicated that the one common feature was the preparation or readiness for response. Furthermore, Allport suggests the vital concept of attitude development and change when he describes attitudes as being conditioned by experience (Allport 1935). He also claims that isolated experiences, unless traumatic, seldom have the power to develop or change an attitude. This emphasizes the importance of a sequential, integrated approach to the development of attitudes over a period of time.

Both concepts, attitude as a determinant of behavior and attitude as a resultant of experience, are evident in more recent work. Campbell (1968) defines attitude as an acquired behavioral disposition. Fishbein's (1967, p. 477) definition, presented in a later section of this chapter, includes the phrase "learned predisposition to respond."

Fishbein further views beliefs and behavioral intentions as determinants and consequences of attitudes, respectively.

Each of the above concepts is of import for anyone desiring to measure direction and intensity of attitudes toward a particular object, or for anyone intending to influence the direction of attitudes relative to an object. The former pursuit, with regard to the object of physical education, has been a common endeavor since the appearance of the Wear Inventory in 1951. The latter purpose, namely, influencing the direction of attitudes, has met with opposition from some educators who fear the ultimate possibility of indoctrination (Dressel 1976). Other educators, however, are calling for increased emphasis on affective outcomes, especially those outcomes potentially related to health and survival (Neulinger 1967; Singer 1974). Corbin and Chevrette (1974) and Norman (1967) found a significant positive change in students' attitudes toward physical education after a one-semester lecture-laboratory course for non-majors. Howell used a specially designed printed manual in an attempt to change environmental attitudes of high school agriculture and science students in existing classes with limited success. A similar approach to attitude development or change with physical education majors was not found.

Need

Over the last three decades, many studies have been conducted in the area of student attitudes toward physical education and physical activity. A large proportion of these

studies have attempted to measure attitudes and describe the relationships between the attitudes and a variety of personal, educational and social factors (Fisher 1964; Wessel and Nelson 1964; Vincent 1967; Duthie 1969; Floyd 1971; Hill 1971; Johnson 1971; Lockhart 1971; Gibson 1972; Sepasi 1975).

Many other studies have investigated the effect of different methods of grouping students or the effect of teaching specific activities upon attitude (Marburger 1965; Brown 1969; Erickson 1969; Gravett 1969; Dorey 1970; Teaff 1970; Johnson 1975). Another research emphasis has been the measurement of attitudes before and after a particular course or experience in order to evaluate the effectiveness of that course or experience (Hellison 1969; Eichstaedt 1973; Motley 1973; Tolson and Chevrette 1974; Zaichkowski 1975). Several well-designed studies have investigated the effectiveness of basic foundation courses required of freshman college students (Norman 1969; Kidd 1971; Tieman and Beck 1971; Corbin and Chevrette 1974). Both the designs and the results of such studies have varied.

Relatively few investigators have designed specific experimental treatments of a curricular or extracurricular nature and attempted to assess attitude change as the dependent variable (Yingling 1967; Brumbach 1968; Davis 1968; Brown 1971; Gustafson 1972; Orbaker 1972; Ziatz 1973; Dzikielewski 1974). The nature of the treatments has varied as have the findings. Sheehan (1965) and Alsop (1968) successfully designed and implemented strategies in an activity class to effect attitude change toward a specific social object. Blatnik (1968) found attitudes toward lifetime sports to improve following the use

of a specially designed teaching model. Few researchers have used physical education major students or in-service teachers as subjects in either descriptive or experimental attitude studies (Isenberger 1957; Herman 1964; Kenyon 1965; Service 1967; Goldberger 1970; Fleming 1972; Countiss 1976).

Except in the latter category of studies, all of the subjects were high school students or non-major college students. In most cases the samples consisted of either males or females. The attitude object generally has been physical education as an activity course when the Wear Inventory (1951) was employed, or physical activity as a multi-dimensional psychosocial construct when Kenyon's (1968) six-scale instrument was used. Little attention has been given to measuring and improving the attitude of majors toward physical education as a curricular activity or toward the profession of teaching physical education.

A published monograph entitled Professional Preparation in Physical Education and Coaching (AAHPER 1967), has identified twenty-six personal performance competencies for physical education majors from the cognitive and psychomotor domains of learning. Another survey (Roundy 1967) lists one hundred and forty-four competencies for male physical education majors. The Michigan Association for Health, Physical Education and Recreation has recently compiled performance competencies for graduates of college and university professional preparation programs (Steig 1978).

Of the three compilations noted above, only the last one attempts to identify competencies in the affective domain.

Several authorities, however, have stressed the importance of affective characteristics for the optimal fulfillment of the teaching role. Jackson (1967) emphasizes that a teacher influences as well as instructs. The attitude of the teacher is important throughout the entire educational process according to Meyne (1964). Thompson (1971) suggests that people's attitudes toward physical education, teaching and children are important factors in the decision to major in physical education. It has been emphasized further by Meyne that a superior professional attitude is indispensable for truly effective teaching.

Recent guidelines from the State Department of Education in Michigan (1976) urged that only the most highly qualified physical educators be given the responsibility to teach in the schools. In addition to competence in psychomotor and cognitive skills, the affective variable of commitment to physical education might be the most distinctive characteristic of such persons.

It is understood that many factors are important in attitude formation and change. Nonetheless, the direct or indirect intent of much curricular planning in the schools has been to assist in a directional change in students' attitudes. The strategies, modes or processes employed in these curricular endeavors have varied and have been affected by time and budget constraints as well as by the level of attitude change desired (Kelman 1967).

There is a need for curriculum experiences designed to influence attitudes at the internalization level (Kelman 1967).

This level is important because of the greater liklihood of behavior change resulting (Krathwohl 1964). Printed or programmed curriculum materials have been employed with some success in disciplines other than physical education. According to Kelman (1967), attitude change at the internalization level is most likely to occur when both the credibility of the content and the relevance of content to subjects' needs are emphasized.

Existing studies in physical education have nearly always used either male or female subject groups. It has been observed, however, that until recently the professional orientation of women majors has been stronger towards teaching, whereas the orientation of the men majors has tended toward coaching (Thornburg 1967; Meyne 1964). Therefore, there is a need to investigate the effect of sex on students' attitudes toward physical education.

Purpose

The purpose of this study was to investigate the effects of a series of value-laden curriculum modules on (1) the attitudes of men and women undergraduate physical education majors toward physical education as an activity course, (2) the level of commitment of men and women undergraduate majors toward the profession of teaching physical education, and to investigate the effects of sex on these attitudinal variables.

Hypotheses

Four hypotheses were tested in this study. The research form of each hypothesis is given in this section.

1. The experimental (Value-laden) group will demonstrate a more positive attitude toward physical education as an activity course in the schools than will the control (Non-value-laden) group.

2. The experimental (Value-laden) group will demonstrate a higher level of commitment to teaching physical education than will the control (Non-value-laden) group.

3. Women will demonstrate a more positive attitude toward physical education as an activity course in the schools than will men.

4. Women will demonstrate a higher level of commitment to teaching physical education than will men.

Assumptions

In the light of the volume of literature and the variety of views regarding the definition and role of attitudes in human activity, a brief discussion of the assumptions underlying this research project is in order.

1. Although choosing physical education as a major is undoubtedly an indication of a positive attitude toward physical education, increasing the magnitude or intensity of that attitude is assumed to be a desirable objective of the professional preparation curriculum.

2. A prospective teacher with a strong positive attitude toward physical education and a strong commitment to teaching physical education will be more likely to expend maximal effort and energy to achieve success in the field (Allport 1935; Campbell 1968; Fishbein 1967).

3. Desirable educational outcomes, including those in the affective domain, are more likely to occur if learning experiences are formally planned to facilitate such development.

4. It is possible to articulate specific affective instructional goals (Lee and Merrill 1972; Singer 1974).

5. It is possible to plan curricular experiences for the achievement of affective goals (Sheehan 1965; Singer 1974).

6. It is possible to measure status and change in attitudes with established or carefully developed instruments (Thurstone 1928; Likert 1928; Wear 1951; Kenyon 1968b; Dressel 1976).

7. Physical education as an activity course in the school curriculum, and the teaching of physical education are definite and separate objects of individuals' attitudes.

Research Plan

Two measurable affective characteristics, namely, attitude toward physical education as an activity course and professional commitment to teaching physical education were the dependent variables in this experiment. Subjects were sophomore, junior and senior physical education majors enrolled in HPR 253, Mechanical Analysis of Physical Activity, at Michigan State University during the 1977 spring term.

Fifty-three subjects were assigned randomly by sex to the experimental and control groups for participation in the six-week curriculum treatment. Since participation in the study was not a requirement for the course, some members of each group chose not to be involved. Thus, the experimental group consisted of eighteen subjects including ten males and eight females. The control group was comprised of thirteen subjects including seven males and six females.

Beginning the second full week of the term, each subject in the experimental group completed one value-laden module per week for a six-week period. During the same time period, each subject in the control group completed curriculum modules which were not value-laden. The subjects were not aware of the two groups or of the intentional difference in module content.

Two attitude survey instruments were used to collect data on the dependent variables following the experimental period in accordance with the posttest only control group design (Campbell and Stanley 1973). Data were collected from forty-five students, including sixteen experimental subjects, thirteen control subjects and sixteen non-participating students. Scores on the Wear Inventory were used as measures of attitude toward physical education as an activity course. A professional opinion scale was constructed as a part of this project to assess commitment to the profession of teaching physical education.

Analysis of the data was done using the Statistical Programs for the Social Sciences (SPSS) Crosstabs nonparametric computer program for nominal data. Two separate two-by-two contingency tables for each dependent variable provided specific statistics in an effort to answer the following research questions: (1) Is there a difference between experimental and control groups on attitude toward physical education as an activity course? (2) Is there a difference between experimental and control groups on level of commitment to teaching physical education? (3) Is there a difference between male and female subjects on either or both of the dependent measures?

Limitations

Any study involving data collection from human subjects in a social or educational setting must admit to certain limitations. This is especially true when the dependent variables are measures in the affective domain. Several of the problems associated with this type of research were discussed earlier

in this chapter. At this point, specific limitations relating to procedures are listed.

1. Experiences which influence the development and change of even specific attitudes are multiple, and the most careful research design cannot control all such variables.

2. Completion of the experimental curriculum modules required approximately thirty minutes outside of class each week. Because this was not a part of the course requirements, the complete cooperation of the subjects could only be requested and assumed.

3. The instrument for the measurement of professional commitment was developed as a part of this research project and, therefore, has reliability and validity indices based only on pilot study data.

4. In part, the ability of the research design and statistical procedures to ascertain any treatment effect(s) may be related to the extent to which the actual intentions of the treatment and data collection were disguised (Hegarty 1975).

Definition of Terms

Attitude. The definition used within the framework of this study was taken from Fishbein (1967, p. 477) and is as follows: "A learned predisposition to respond to any object in a consistently favorable or unfavorable way."

Commitment. Strong belief involving a high degree of certainty with resultant actions intended to further the object in some way.

Professional Commitment. Holding a strong belief in the value or worth of physical education with a high motivation to teach and act in such a way that will further the objectives of physical education.

Curriculum Module. An instructional unit of limited duration including objectives, reading content, brief written responses, immediate feedback and evaluative components.

Value-laden Module. A module, the content of which communicates obvious support for the worth of the objects: physical education and teaching physical education. This loading might be evident as a cognitive emphasis upon factual benefits for strengthening one's belief in physical education, or it might be evident as an affective evaluative component for heightening feeling about physical education.

CHAPTER II

RELATED LITERATURE

In this chapter, numerous studies dealing with attitudes toward physical education and physical activity are reviewed. These studies are presented in several sections as follows: studies appearing before 1950; studies yielding physical education attitude inventories; descriptive studies since 1950; quasi-experimental and experimental studies; and studies with physical education majors as subjects. Some of the studies cited are reviewed in detail since they relate directly to this project. Others are identified as illustrations of a specific category or emphasis. Studies from other disciplines are included only if the design or procedures are similar to those of this project.

Early studies of attitudes toward physical education

Following the articulation of acceptable definitions of attitude as a psychosocial construct and the development of techniques for attitude measurement, numerous studies were conducted to investigate and describe the attitudes of students toward physical education. Studies completed before 1950 were generally single-observation opinion surveys reported in a descriptive manner. The attitude object in these studies was the high school or college physical education service

program. The works of Hill (1941), Carr (1944) and Nemson (1949) are examples of such early survey research.

A mail survey technique was used by Hill (1941) to gather attitudinal information from students, physical education instructors, administrators, athletes, school board presidents and PTA presidents about numerous components of the physical education programs in selected Illinois high schools. Subjects responded to each of the 104 items by placing a check on a five-point conditional yes-no scale. Data were presented graphically and the conclusions were general in nature. When all subject groups were considered, there was strong agreement or support for 17.3 per cent of the items and strong disagreement with 7.7 per cent of the items. The eighteen strongly supported items were stated positively on the survey and the eight weakly supported items were stated negatively.

Carr (1944) constructed an attitude scale using the Thurstone-Chave technique, the final form of which contained ninety-four items. She administered the scale to 335 high school freshman girls and found significantly higher attitude scores for successful students than for unsuccessful students. Success in her study was established solely by a student's grade in physical education.

Nemson (1949) had four instructors independently assign a good or poor attitude rating to each of 323 male junior and senior high school physical education students. He administered a 121-item survey instrument to the subjects in

an effort to determine what factors, conditions or behaviors were most annoying to them. On seventeen of the survey items there was a significant differentiation between the two attitude rating categories. Eight items were noted as being most annoying to boys rated by their instructors as having a good attitude. Nine items were discovered to be most annoying to students rated by their instructors as having a poor attitude. Since many sources of annoyances involve the learning environment as well as teacher and student behaviors, it was Nemson's suggestion that identification of annoyance factors be the first step in improving poor attitudes through subsequent optimizing of the teaching-learning conditions and behaviors.

The three studies cited above, as well as a few others conducted before 1941, seem to be characterized by detailed procedures and lengthy discussions. This is understandable since a common definition of attitude had not been widely accepted at that time and since instrumentation for attitudinal data collection in physical education was virtually nonexistent. Many descriptive studies focussing on attitudes toward physical education have appeared in the literature since 1950 and some of these are reviewed in a subsequent section of this paper.

Studies yielding physical education attitude inventories

A thorough study conducted by Wear (1951) at the University of Iowa resulted in the development of the Wear Inventory. Wear carefully constructed and tested his attitude instrument

using college males as subjects. The initial scale contained forty items with a Likert-type response format and was found to be valid and reliable. The purpose of the Wear Inventory was to measure students' attitudes toward physical education as an activity course. Broer (1955) used the Wear Inventory on college age females and found reliability coefficients nearly identical to those determined by Wear.

In 1955 Wear published equivalent forms of the original inventory, forms A and B with thirty items each. His intention was to facilitate studies which would examine attitude change over time. Since that time both the original form of the inventory, called the short form, and forms A and B have been widely used.

Physical activity was approached by Kenyon (1968a) as a multidimensional sociopsychological construct, and his work led to the development of a six-scale inventory to assess attitude toward physical activity. The overall attitude object for Kenyon's instrument was physical activity, in contrast to physical education courses in the schools. He devised separate forms of the scales for men and women which have been used by psychologists as well as physical educators.

Many researchers have adapted the survey instruments of Wear and Kenyon, or have developed new instruments for measuring attitudes toward physical education. Kneer (1956) adapted the Wear Inventory for use with high school girls. A scale for assessing the attitudes of college males toward physical education was constructed by Cutler (1958). The Wear Inventory was again adapted for use with high school

freshman boys by Edgington (1965). Campbell (1968) found the unadjusted Wear Inventory to be suitable for use with junior high school boys.

Attitudes of college students toward physical fitness were measured with a scale developed by Kahnert (1969). From one hundred preliminary items, twenty-five items were retained in the final form. The reported reliability for Kahnert's instrument was .70.

Kenyon's scale was adapted for use with elementary level subjects by Simon and Smoll (1974). They found acceptable test-retest reliability for the revised scale using four hundred fourth, fifth and sixth grade students.

Of nineteen pre-post attitude studies reviewed for a later section of this chapter, eleven used some form of the Wear Inventory and three employed the Kenyon scale.

The Physical Estimation and Attraction Scales were developed by Sonstroem (1974) as an extension of Kenyon's scales. He used a true-false (affirm or deny) response format with items from each of six domains. The technique used by Sonstroem to disguise the true purpose of the surveys was helpful in the design of this research project.

Descriptive studies dealing with attitudes toward physical education

The attitudes of non-major students toward physical education or physical activity have been examined by many investigators. The description of these attitudes or the reported relationship between attitudes and other factors comprise the results of such single-observation studies.

Wessel and Nelson (1964) found significant correlations between strength scores and scores on the Wear Inventory for college women. They recommended that experimental research be done in an effort to discover the conditions of learning that contribute to the development of positive attitudes.

Attitudes of college students toward physical education were determined by an interview technique and were compared with observed teacher behaviors by Pestolesi (1968). He concluded that teacher behaviors do have an effect on students' attitudes. No specific correlations or conclusions were given, however, as to which behaviors affected attitudes positively or which behaviors affected attitudes negatively.

Attitude toward physical activity as assessed by Kenyon's scales was compared by race, sex and socio-economic level in a study by Mullins (1969). She reported all attitudes to be positive with blacks generally displaying a more positive attitude than whites and males reacting more positively than females.

In a study by Lockhart (1971) two hundred women college students were given the Cattell Sixteen Personality Questionnaire, Form A. The personality data were compared with the results of both the Wear Inventory and with Kenyon's Attitude Toward Physical Activity scores for the same students. Sixteen of the twenty personality factors related significantly to positive attitudes toward physical education. It was concluded that there was a relationship between factors depicting a healthy personality and positive attitudes toward physical activity.

The comparison of athletes' and nonathletes' attitudes toward physical education was the focus of a study conducted by Floyd (1971). Athletes were reported to have higher scores on the Wear Inventory than nonathletes while there was no significant difference noted between team sport and individual sport participants.

Fleming (1972) investigated the relationship among attitudes toward physical education, activity skills, and creativity for high school physical education students and teachers. Findings revealed teacher creativity and student attitudes toward physical education to be positively related. However, student attitudes toward physical education and skill level in physical activities were negatively correlated.

A study by Sepasi (1975) describes the relationship between men and women college students' attitudes toward physical activity. Kenyon's scales for men and women were used and the attitudes of the two groups were discovered to be similar.

Quasi-experimental and experimental studies of attitudes toward physical education

The effect of a course or a specific curricular experience upon the attitudes of non-majors toward physical education has been the focus of numerous investigations. Frequently, these studies were simply comparisons of attitude scores collected before and after a regularly scheduled one-semester course. The studies of Broer (1955), Davis (1964), Johnson (1971) and Reeves (1972) are examples of such comparisons. Each of these investigators used the Wear Inventory

with college freshman subjects. Johnson and Davis used the equivalent forms, A and B, of that inventory and reported no difference in attitudes of the subjects. Broer and Reeves used the short form of the Wear Inventory and reported a significant positive change in the subjects' attitudes.

Over the last ten years several researchers have investigated the effect of a required freshman "Foundations" course on the attitudes of college freshmen toward physical education. Of the six studies of this nature which were reviewed, three (Norman 1969; Tieman and Beck 1971; Corbin and Chevrette 1974) reported significant positive changes in students' attitudes. Two studies (Duthie 1969; Zaichkowski 1975) found no significant differences between students in the basic activity program and the foundations course. In addition, one study (Kidd 1971) showed a significant decrease in positive attitudes toward physical activity after the one-semester lecture-lab course. It should be noted that four different attitude survey instruments were used in these six investigations.

Variations in teaching methods, class composition, grouping, and scheduling have been designed as independent variables in numerous other studies. The findings reported in such studies are conflicting and do not indicate specific factors which are consistently associated with positive attitude change in physical education classes.

Eleven studies of this description were reviewed. Six of these investigators used the Wear Inventory equivalent forms A and B to assess the effects of various factors on attitudes of students toward physical education, and all six

found no significant difference between categories (Marburger 1965; Gravett 1969; Erickson 1969; Dorey 1970; Teaff 1970; Orbaker 1972). Eichstaedt (1973) found both a motor skill emphasis and a fitness emphasis in activity classes to improve negative attitudes toward physical activity as measured by the Kenyon scales. Using the same instrument, Tolson and Chevrette (1974) reported significant increases in four of the six scales after a course utilizing individual exercise prescription. Performance-based instruction was found to be more effective than traditional instruction for improving attitude toward physical education in a study conducted by Johnson and Leider (1975).

A smaller number of attitude studies have been completed in which a specific treatment was developed, implemented, and investigated as the independent variable. These studies are more relevant to the current investigation.

Sheehan (1965) and Alsop (1968) devised a teaching model for college physical education activity classes which was intended to produce attitude change as well as cognitive learnings and psychomotor skill improvement. By randomly assigning five intact classes to one of four control groups or one experimental treatment, Sheehan used the structured-process teaching model with a soccer class, and the traditional activity instruction procedure with two soccer and two tennis control classes. The design allowed for one pretest-posttest control group and one posttest-only control group in tennis and soccer. The one experimental soccer group was given both the pretest and posttest. Student attitude toward

cooperation was the dependent variable and was measured by an instrument which combined a semantic differential scale and an operationally-defined concept of cooperation. Both researchers found the teaching model, referred to as educational sport, to be effective in significantly improving college students' attitudes toward cooperation. In the collaborative review of their work, Sheehan and Alsop (1972) referred to the "value-laden" uses of educational sport.

Using a similar approach, Blatnik (1968) investigated the effect of a teaching model structured to produce positive attitudes toward participation in lifetime sports and conditioning activities. The attitudinal effects of the model were concluded to be positive.

A recruiting film was designed by Davis (1968) to attract college-bound high school girls to physical education teaching as a career. Results of a single showing of the film indicated increased vocational choice on a career preference survey, but no difference in attitude toward physical education as measured by the Wear Inventory.

Brumbach (1968) introduced a "gem of the day" quotation relating to physical fitness as the treatment in an experimental remedial fitness class. And, although significant attitude change was found after the ten-week treatment when pre-post means on the Wear Inventory were compared, several uncontrolled variables made conclusions about the specific "value-laden" treatment effect unwarranted.

Ten minutes of each class period were set aside for the teaching of physical education concepts to high school girls'

classes by Yingling (1968), while the control class spent the entire time in activity. No significant differences in gain scores were found in attitude toward physical education as measured by Kneer's (1956) adaptation of the Wear Inventory.

A ten-week adaptive activity program designed to decrease obesity and improve attitude toward physical fitness was the independent variable in a study reported by Brown (1971). Although the degree of obesity was reduced, there was no significant improvement found for either diminished body fat or improved attitude toward fitness.

After assessing parents' attitudes toward physical education using the Wear Inventory, Ziatz (1973) introduced a nine-week community public relations campaign to promote physical education. The campaign consisted of sending a series of weekly newsletters home to parents, a slide-sound presentation about the ninth grade physical education program, and a group discussion with parents. Mean attitude scores on equivalent posttest forms of the inventory for the same adult subjects were found to be significantly more positive following the treatment. The mean attitude scores for the control group of parents decreased over the nine-week period.

No difference in attitude toward physical education was reported by Dzikielewski (1974) following subjects' participation in a short-term elementary physical education teaching experience. The subjects in the study were not physical education majors and the Wear Inventory was used for pre-post data collection.

Attitude studies using physical education majors as subjects

Relatively few attitude studies have been completed in which undergraduate physical education majors have been observed as subjects. Some correlational studies have considered attitude as one of several factors in describing physical education majors (Isenberger 1957; Herman 1964; Kenyon 1965; Servis and Frost 1967; Lee 1973).

Isenberger (1957) used the "Who am I" test for measuring self-attitudes of women physical education majors and reported no significant relationship between self-attitudes and selected measures of success. Teaching attitude as measured by the Minnesota Teacher Attitude Inventory was considered as one measure of success in Isenberger's study.

Teaching attitude was the dependent variable with grade point average and success in athletics as independent variables in a study completed by Herman (1964). Using male majors there was no significant relationship found between teaching attitude as measured by the Minnesota Teacher Attitude Inventory and grade point averages in health and physical education, professional education, or total college work. Likewise, there was no significant difference in the mean attitude scores of those majors who had experienced success in athletics and those who had not experienced success in athletics.

Attitude toward education, Rokeach's Dogmatism Scale score, a measure of social values, and a measure of social class background were considered as dependent variables in a study by Kenyon (1965). Prospective male physical education

teachers were compared with prospective female physical education teachers, education majors and arts and science majors. Three interesting conclusions are given by Kenyon, only the latter of which relates closely to the current study. He suggests that prospective male physical education teachers have a more weakly formulated traditionalistic philosophy of education, have a slightly lower social class background, have different social values, and are more dogmatic than prospective teachers in other areas of study. Greater similarities were reported between the male physical education majors and the arts and science majors than between the male majors and other prospective teachers. Finally, prospective male physical education teachers, in contrast to prospective female physical education teachers, have a less consistent, more traditionalistic philosophy of education, have a lower social class, possess somewhat different social values, and are more dogmatic and authoritarian in their thinking.

Qualities related to success in a women's physical education professional preparation program were investigated by Servis and Frost (1967). The best single predictor variable was physical fitness when the success criterion was established by combining cumulative academic grade index, ratings by departmental faculty and ratings by students' peers. They reported practically no relationship between the value and interest variable and success. The data-collection techniques for the value and interest variable, however, were not sophisticated and success was largely academically defined.

The best combination of predictors in the study was physical fitness, temperament traits, and mental abilities.

Lee (1973) found a regression formula based on selected personal and socio-economic factors to be as effective in predicting the attitude of non-majors as the attitude of majors. In other words, even though he found a significant difference in attitude scores between physical education majors and non-physical education majors, there was no significant difference between the coefficients of multiple determination for the two groups.

Three studies have been done in an effort to construct specific instruments to assess the attitudes of physical education major students toward physical education as a curricular or professional area. Jaeger (1952) investigated the feasibility of a picture-story projective test for assessing attitudes of physical education majors, but concluded that the instrument was invalid.

Meyne (1964) developed a situation-response instrument to measure the professional attitude of male physical education majors, but reported little beyond the instrumentation aspect of the study. The forty-item survey was found to be a valid and reliable tool for measuring attitudes of male majors toward the profession of physical education. However, the profession was defined by Meyne with a strong emphasis upon athletic coaching, and the instrument was validated only for men.

An attitude scale of the Likert type was developed by Thornburg (1967) for measuring the professional attitude of

women physical education majors. The final form of her survey, consisting of fifteen positively-stated items and fifteen negatively-stated items, was demonstrated to be valid and reliable for women. In addition, Thornburg reported little difference between types or locations of colleges relative to the attitudes of women majors.

Two experimental attitude studies have been conducted in which physical education majors or in-service physical education teachers have been observed as subjects. In these investigations, attitude or attitude change was the dependent variable and a specific treatment was the independent variable. The attitude object was teaching in general and not physical education teaching or physical education as an activity course.

Goldberger (1970) observed some attitude change in physical education student teachers following four daily sessions of T-group laboratory training strategies. Another experimental group in the study participated in the traditional cognitive information-practical experience training strategies. A third group participated in a combination of T-group and traditional techniques and a fourth group served as a control group. Attitude toward teaching was measured by the Minnesota Teacher Attitude Inventory and, in addition to attitudinal data, Goldberger collected behavioral data via a modified version of Flanders Interaction Analysis. It was found that although the traditional cognitive information-practical experience group showed greater in-class behavioral change toward more indirect teacher influence, the T-group

and combination group each showed a greater tendency toward positive attitude change. Goldberger's conclusions suggest not only that it is possible to influence attitudes through specific planned curricular strategies, but also that different individual attitudinal and behavioral changes may result from a specific educational strategy.

The effect of training in Mosston's Spectrum of Teaching Styles on the attitudes and behaviors of thirty-eight volunteer in-service physical education teachers matched into experimental and control groups was investigated by Countiss (1976). (It is interesting to note that some attention was also given to Mosston's Spectrum of Teaching Styles by Goldberger's traditional group in the aforementioned study.) The attitude object in the study by Countiss was teaching and data were collected by using the Minnesota Teacher Attitude Inventory. No posttest difference between groups was observed when data were analyzed by analysis of covariance with the pretest scores as covariates.

No studies were found which investigated the effects of a particular curricular experience or a specific professional preparation course upon the attitudes of major students toward physical education as an activity course or toward the profession of teaching physical education.

Related attitude studies from outside physical education

Numerous studies in the general area of teacher education have been conducted in an effort to determine the

attitudinal effects of a specific course, teaching method, or field experience.

Price (1971) reported the attitude toward teaching of sixty-seven secondary student teachers to be significantly improved after the student teaching assignment. Three groups of prospective elementary science teachers were tested by Pickering (1970) for science competence, attitude toward teaching and attitude toward teaching science. The student-centered inquiry-laboratory group was found to be significantly higher on posttest attitude toward teaching science than either the control group or the teacher-centered inquiry-demonstration group. Science competence was not related in that study, however, to either attitude toward teaching or attitude toward teaching science.

Sickmiller (1973) reported no change in attitude toward teaching or in desire to teach between the results of surveys given before and after an early clinical experience in an elementary teacher preparation program. Scores on the Confidence Level for Teaching Inventory did show significant improvement following the same clinical experience consisting of one half-day per week as a teacher aid plus weekly seminar discussions.

Wolken and Clarke (1974) conducted a ten-week intensive teacher training program for minority teacher-trainees and concluded that the treatment did modify the attitudes and values of the subjects in the direction of good teaching and self-actualization. Several studies in specific academic

areas are, however, more relevant to this investigation primarily because of similarities of intent and design.

The effect of role-playing via written advocacy of an assigned opinion was studied by Alpert (1965). The subjects' real opinions about a specific business personnel decision were assessed before and after their assigned role play. Posttest opinions were reported to change in the direction of advocacy. This might suggest that involvement of some sort is superior to information-giving as an influencer of attitudes.

Domyahn (1972) investigated the effect of a non-persuasive film followed by a specially designed persuasive critique upon a specific attitude toward an American president. The results indicated that there was a short-term favorable (in the direction advocated in the critique) attitude effect as measured by a single-item seven-point Likert scale. The more favorable response, however, was not retained when subjects were tested eight days later.

The attitudes of high school students toward environmental protection were examined by Howell (1973). Using the Solomon four-group design, attitude measures were taken before and after the use of a special student manual in intact science and vocational agriculture classes. No significant difference was found between the group using the manual and the control group. However, a significant interaction effect was noted in science students using the treatment manual. Howell (1974) subsequently advocated the design and use of specific teaching strategies for changing attitudes.

Prothers and Ehlers (1974) reported no significant difference between attitudes of social work students toward the mentally handicapped before and after four sessions of programmed instruction on mental handicaps. They suggested that something other than increased knowledge about the attitude object is, in fact, necessary in order to change attitude.

Significant treatment effects were discovered by Hegarty (1975) following five weeks of participation in a society simulation game. In this case the dependent variable was attitude toward or about community. This finding, along with those of Alpert (1965) and Domyahn (1972), support the need for subject involvement at an active participation level in order for attitude change to occur. In addition to a two-group pre-post design, Hegarty also disguised the post-test in an attempt to minimize the effect of interferring variables.

Summary

For approximately two decades following the development of attitude testing procedures and instruments, physical educators were not intensively involved in attitude research. Some descriptive studies were completed prior to 1950, but most research studies dealing with attitudes of students toward physical education have been done since the mid-point of this century.

Instrumentation for attitude research in physical education was greatly improved with the appearance of the Wear Inventory in 1951 and Kenyon's Attitude Toward Physical Activity

survey in 1968. Many researchers have employed these instruments, or variations of them, in descriptive, quasi-experimental and experimental research on attitudes toward physical education and physical activity. Few of these studies, however, have utilized undergraduate physical education majors as subjects.

Five studies which investigated attitudinal effects of specifically-designed independent variables or treatments in other disciplines were reviewed. While the results of these studies were inconclusive, there was support for active subject participation beyond the traditional verbal or paper-and-pencil involvement if a distinct attitude change is desired.

Both of the experimental attitude studies involving physical education majors were completed after 1970. In these investigations the attitude object was teaching in general and not teaching physical education. Therefore, the results give little information or direction to curricular planning for affective outcomes in the undergraduate professional preparation program. It does appear that educational experiences differentially influence attitudes of students. Further research to elucidate appropriate curricular strategies for desired affective outcomes is in order.

CHAPTER III

RESEARCH METHODS

The research methods and procedures which were used in the present study are discussed under the appropriate headings in this chapter. Sections are devoted to: Sample, Measures, Design, Procedures, Hypotheses and Analysis. In the section dealing with measures, subheadings denote discussion relating to dependent variables and instrumentation and to independent variables.

Sample

Undergraduate physical education majors enrolled in HPR 253, Mechanical Analysis of Physical Activity, at Michigan State University during the spring term 1977 were selected as subjects. The twenty-eight males and twenty-five females in the class were assigned randomly by sex to the experimental or control group. Since participation in the study was not part of the course requirement, the cooperation and involvement of students was essentially voluntary. Seventeen males and fourteen females participated during the entire six-week period and, therefore, comprised the research sample. More specifically, there were ten participating males and eight participating females in the experimental group, whereas there were seven participating males and six participating females in the control group. Approximately fifty per cent

of the subjects were juniors, twenty-five per cent were sophomores and twenty-five per cent were seniors. At the end of the experimental period, data were collected from all forty-five students present that day. The analysis of data for hypotheses 1 and 2 was completed using only the scores of the twenty-nine participating subjects who were present for the posttest. The analysis of data for hypotheses 3 and 4 was completed using the scores of all forty-five students who were present for the posttest.

Measures

The dependent variables are discussed in conjunction with a description of the survey instruments used to collect the data. The treatment or independent variables also are described with some explanation of the procedures used in developing the treatment.

Dependent variables and instrumentation

Two dependent variables were measured. The first variable was the subject's attitude toward physical education as an activity course. This attitude was measured by the Wear Inventory which is a forty-item survey (Wear 1951). The second dependent measure was the subject's commitment to the profession of teaching physical education. This second variable was measured by a professional opinion scale developed and pilot tested by the investigator.

The Wear Inventory was developed in 1951 in an attempt to provide for reliable and valid assessment of the direction

and intensity of individual and group attitudes toward physical education as an activity course in schools (Wear 1951). Two hundred and eighty-nine items, each relating to one of several widely-accepted objectives of physical education, were selected in the preliminary construction of this instrument. The final form of the inventory provides for a Likert-type response to each of forty items. A split-half reliability coefficient of 0.96 was established using 472 subjects. This coefficient was increased to 0.98 when the Spearman-Brown formula was applied. The product-moment correlation between the inventory scores and subjects' graphic self-ratings of their own attitude toward physical education was 0.80 and was used by Wear as an index of validity.

Although the Wear Inventory was developed using college men as subjects, it has been employed with college women resulting in identical coefficients (Broer 1955). Wear (1955) developed alternative forms of his survey which were not necessary with the design of the present study. The forty-item short-form used in this study is presented in Appendix A.

The second dependent variable, the subject's commitment to the profession of teaching physical education, was defined as holding a strong belief in the value or worth of physical education with a high motivation to act and teach in a way that will further the physical, psychological, social and emotional objectives of physical education. This particular affective variable is based upon the explanations of "valuing" and "commitment" found in levels 3.0 and 3.3, respectively, of the Taxonomy of Educational Objectives

Handbook II: Affective Domain (Krathwohl et al. 1964). Pertinent excerpts from that taxonomy are included as a part of Appendix B.

The instrument which was developed to assess the professional commitment variable was identified as the Professional Opinion Survey in both the pilot and final forms. The procedure used in the development and pilot testing of the Professional Opinion Survey is outlined at this point.

Thirty-one potential items relating to teaching physical education were designed by the investigator for Likert-type responses. The items were simple statements or descriptions of situations relating to the roles and responsibilities of physical education teachers. This list of potential items was sent, along with an explanatory letter, to nine professional physical educators who were known by the investigator and who were either currently or formerly involved in professional preparation. The raters were instructed to assign a single weight from one to five (one for a low rating) to each item on the basis of its appropriateness and semantic quality. The raters were also asked to suggest additional items for consideration.

In an attempt to provide more preliminary items, two previously-developed scales for professional attitude (Meyne 1964; Thornburg 1967) were reviewed. A second list of thirty-one additional items was then compiled by the investigator and submitted for rating to four recent physical education graduates from Spring Arbor College.

Upon receipt of ratings from five of the nine experienced professionals and three of the four young professionals, an average rating between one and five was calculated for each item. After examination of both lists of items and average ratings, the criterion for retention of items was arbitrarily set at an average rating of 3.5 for items rated by experienced professionals and at an average rating of 4.0 for items rated by young professionals. The different retention criteria were justified because of the apparently more rigorous criticisms on the part of the experienced professionals, and also because of the need to retain at least fifty preliminary items for the pilot survey.

Using these criteria, thirteen positively-stated items and ten negatively-stated items were retained from the first list of thirty-one items. From the second list, six positively-stated items and fourteen negatively-stated items were retained. Seven new items based upon suggestions by the raters brought the total for the preliminary form of the Professional Opinion Survey to fifty items. Twenty-five items were stated positively and twenty-five were stated negatively. The order of the items was randomly determined and the survey was designed to use the Likert-type responses of strongly agree, agree, undecided, disagree, and strongly disagree. The initial list of thirty-one items is a part of Appendix B. The second list is included as Appendix C, and the list of seven additional items is Appendix D.

Pilot testing of the fifty-item preliminary survey was conducted with a sample of fifty-nine physical education

majors from two colleges other than Michigan State University. A split-half reliability coefficeint of 0.64 was found. The Spearman-Brown prophecy formula was not applied because the number of items in the final form of the survey was to be reduced. An index of validity was calculated using the criterion of a graphic self-rating of professional commitment. This self-rating was completed on a separate response sheet after the completion of the Professional Opinion Survey. The self-rating consisted of a continuum from left (low) to right (high) which could be scored numerically from one to twenty (Wear 1951). The correlation between overall subject scores and self-reported commitment to teaching physical education was found to be 0.53 using fifty-two of the fifty-nine subjects from whom both scores were collected. The complete preliminary form of the Professional Opinion Survey and the Graphic Self-rating from comprise Appendix E.

In order to retain the best items, an item analysis was conducted with the pilot test results. In comparing upper and lower quartiles, any items which did not discriminate at or above the 0.10 level of confidence were discarded. Using this criterion, twelve positively-stated items and thirteen negatively-stated items were retained as the final Professional Opinion Survey. This instrument is included as Appendix F.

Independent variables

The treatment variable for this study was the completion of a series of self-administered instructional modules dealing

with subject matter representing generally accepted goals of physical education. These goal areas dealt with the physical, psychological, social and emotional development of students (Wear 1951). The subjects in the experimental group were assigned modules which had been designed and accepted as "value-laden" in accordance with the following criteria:

1. Contained content material published during the last fifty years and covering a range of dates within that period.

2. Contained content material which gave an obvious impression of a positive value position regarding physical education as being of worth physically, psychologically, socially and emotionally.

3. Contained content material with high potential to positively affect the feeling, as well as the thinking, of a subject toward physical education and teaching physical education.

Content meeting the above criteria could be further classified into one of the following categories:

1. Public speeches given or papers read at professional meetings.

2. Narrative accounts of model people or programs in the field of physical education.

3. Articles or papers emphasizing the potential of professional physical education.

4. Articles or papers stating societal or educational needs to which physical education might contribute.

5. Articles or papers stating professional needs or challenges, and calling for change, improvement and progress.

The control subjects were assigned modules containing physical education subject matter which did not qualify as being value-laden. The content of these modules was informational but not inspirational. Both sets of modules had the same format requiring the subjects to read instructional

objectives, read content material, respond to simple short-answer test items, and then complete a brief application section in which they located, reacted to, stated an opinion about, or otherwise interacted with the content which had been read.

The process of constructing the two series of instructional modules included several steps. Material from a wide variety of sources such as journals, anthologies, monographs, proceedings, professional texts and popular books and articles was reviewed. Readings also were solicited from several experienced physical educators known to the investigator. The scope of the subject matter or content included in the value-laden series conformed to the four sub-areas in the Wear Inventory (1951), namely, physical, mental-emotional, social and general. In addition, content in the area of professional development and involvement in teaching was included. The subject matter for the non-value-laden modules was taken generally from the areas of motor development, history of physical education and methodological research studies. These areas were considered to be more factual than inspirational. Six modules comprised the experimental (value-laden) series and six modules comprised the control (non-value-laden) series. If more than one content selection was used in a single module, all selections related to the same general area or emphasis.

Selection of the reading content for the experimental modules was made by the investigator in accordance with the

criteria for value-laden materials. Page one of each module contained the title, author, and source for each reading. In part two several simple, operationally-stated instructional objectives were listed. Part three contained the actual reading content. Part four consisted of specific short-answer questions, spaces for subject responses, and provisions for immediate feedback. The feedback process was facilitated by use of a latent image developer which was rubbed over the answer frame by the subject. The final section of each module included one or two application items which were open-ended as contrasted to the alternative response answers in part four.

For formative evaluation purposes, ten value-laden and eight non-value-laden modules were submitted to eight readers who were upper division physical education majors or graduates of Spring Arbor College. These readers were given a sheet containing the criteria for value-laden content and asked to classify each of the eighteen modules as either value-laden or non-value-laden. When six of the eight readers were in agreement with the intended classification of a module, it was accepted for use in the study. Six experimental and six control modules were retained from the eighteen modules constructed. Samples of a value-laden module and a non-value-laden module appear in Appendix G and Appendix H respectively. In addition, the content lists for both module series are included in Appendix I and Appendix J.

Design

The design used in this study is described as the posttest-only control group design (Campbell and Stanley 1973). This design was used because it controls for testing as a main effect and as an interaction without measuring these effects (Campbell and Stanley 1973). In addition, the absence of a pretest in this design avoids the problem of sensitization which is potentially contaminating in attitude change studies.

The best pretest-posttest design would have been the Solomon 4-group design. However, the gain in external validity and the tighter control on differential mortality would have been outweighed by the necessarily lower number of subjects in each cell, the above-mentioned sensitization effect, and the generally greater effort in data collection.

It should be mentioned that the control group in this study actually received a "placebo" treatment, the non-value-laden modules, since both groups were present in the same class. Therefore, diagramatically the design appears as:

$$R \quad X_E \quad O_1$$
$$R \quad X \quad O_2$$

Another important advantage in using this design was the ability to disguise the nature of the dependent variables in the study. With no pretest it was possible to mask the affective focus of these variables. Mild verbal manipulation of the subjects and the instructional framework of the modules were intended to cause a preoccupation with the cognitive aspect of the treatments and thus disguise the purpose of the

posttest. No attention was focussed on attitudes during the six-week treatment. When the two attitude surveys were given as the actual posttest, they were administered by the assistant chairman of the department and the procedure was not associated with the modules.

Procedures

Fifty-three students enrolled in HPR 253, Mechanical Analysis of Physical Activity, were assigned randomly by sex to the experimental and control groups during the first week of the 1977 spring term at Michigan State University. Since there were fewer than thirty subjects in each group and six different modules for each group, five copies of each module were made and the original modules were kept on file. A rotating schedule was used to assign a specific module by number to an individual subject for a given week. The subjects knew nothing of the two groups nor of the two series of modules. They were told simply that it was impossible in a six-week period for each student to complete each of the twelve different instructional modules.

Since participation in this study was voluntary, an initial appeal for cooperation was given to the entire class by the investigator (Appendix K). Care was taken to disguise the nature of the dependent variables while explaining the potential value of the research to instructional improvement in physical education. A printed sheet of instructions and a latent image developer were distributed to each of the

fifty-three students with the first scheduled module. The instruction sheet appears as Appendix L.

The class from which the sample was obtained met five days each week. On Monday the module schedule for that week was posted using student numbers and module numbers one through twelve. Subjects picked up the appropriate module and were instructed to bring it to class for collection on Thursday. Friday's class session provided an opportunity to collect any modules not returned on Thursday.

The weekly distribution and collection of the module was carried out the second through the seventh weeks of the term by the investigator in cooperation with the instructors of the class. Each subject was asked to place his or her student number on the response sheet for each module completed. These response sheets were removed and filed and the modules were prepared for the next week by attaching new response sheets. The identification was the basis for including only the thirty-three cooperating subjects (those completing at least two of the first three modules) in the module rotation process for the last three weeks of the schedule. With the module for the fourth week these subjects received a note of appreciation and encouragement stating that there would be a nominal monetary bonus for each subject completing his or her last three modules on schedule.

Upon completion of the series of six modules on Thursday of the eighth week of the term, the thirty-one remaining subjects were given a simple twenty-item exam covering the content of the six modules they had completed. In addition to

the exam, each subject completed an evaluation form covering the process and content of the instructional modules. These procedures served to terminate the project in the minds of the subjects.

The following week the two attitude surveys were administered to the entire class to collect data on the dependent variables of the study. Twenty-nine of the thirty-one cooperating subjects were among the forty-five students completing these instruments. The assistant chairman of the department administered these surveys according to the procedure given in Appendix M, purportedly to get information which would be helpful in on-going planning for the undergraduate physical education program at Michigan State. Students were assured of anonymity and were encouraged to respond candidly to each item. The investigator was not involved in the collection of these data. However, two assistants were employed to collect the attitude survey response sheets in a separate room as individual students completed them. Each student verbally reported his or her student number which was checked off a master list. The response sheets were then coded according to sex, group and participation level. The data for final analysis of treatment effects came from the twenty-nine participating subjects who completed the attitude surveys at that time. Efforts to secure data from the two participating subjects who were absent that day were unsuccessful.

Testable Hypotheses

Four research hypotheses were stated generally in chapter one. The experimental design and research procedures have

been explained in the preceding sections of this chapter. The hypotheses are now given in statistical form.

1. A significantly greater proportion of the experimental (Value-laden) subjects, as compared to the control (Non-value-laden) subjects, will score above the median in attitude toward physical education as an activity course.

2. A significantly greater proportion of the experimental (Value-laden) subjects, as compared to the control (Non-value-laden) subjects, will score above the median in commitment to teaching physical education.

3. A significantly greater proportion of the female subjects, as compared to the male subjects, will score above the median in attitude toward physical education as an activity course.

4. A significantly greater proportion of the female subjects, as compared to the male subjects, will score above the median in commitment to teaching physical education.

Analysis

Data were analyzed to test the effect of the experimental value-laden curriculum modules upon the attitudes of the subjects toward physical education as an activity course and toward the profession of teaching physical education. Therefore, experimental factor A, the treatment, had two levels. Since hypotheses three and four called for a test of the effect of sex on the dependent measures, a second factor B was considered which also had two levels.

Scores on the Wear Inventory may range from a minimum of 40 to a maximum of 200. The scores on the Professional Opinion Survey may range from a minimum of 25 to a maximum of 125. The Statistical Programs for the Social Sciences (SPSS) Crosstabs computer program was used for nonparametric analysis of

the nominal data (Nie 1970). The data for each dependent variable were examined and divided at the median into high and low categories. The analysis was carried out using four separate two by two contingency tables to test the four hypotheses. The corrected Chi Square statistic was examined to test the significance of the relationship between treatment and sex and the attitude scores by category using a .05 alpha level. The asymmetric lambda was used as a measure of the strength of that relationship. A fifth two by two table was used to investigate the independence of the two attitude measures.

Summary

Fifty-three physical education majors enrolled in HPR 253, Mechanical Analysis of Physical Activity, during the 1977 spring term at MSU were assigned randomly by sex to experimental and control groups. Each of the eighteen students in the experimental group, who chose to participate in the study, completed one value-laden module each week for six weeks. The thirteen control subjects followed a similar schedule with six non-value-laden modules.

Posttest surveys were given to collect data on two dependent variables, namely, attitude toward physical education as an activity course, and level of commitment toward the profession of teaching physical education. Data were analyzed using the SPSS Crosstabs nonparametric program to investigate the effect of the experimental treatment and sex upon the dependent variables.

CHAPTER IV

ANALYSIS OF RESULTS

Four hypotheses were stated and tested in this study. The results and discussions related to these hypotheses are presented in this chapter. A separate section is included for an interpretation of the results. A brief summary section concludes the chapter.

In the results section, the two hypotheses dealing with treatment effect are stated with brief explanatory information. Then the contingency tables dealing with both hypotheses are presented. After the two hypotheses related to the treatment effect have been treated in this manner, a statistics table and a discussion section follow. A similar order of presentation is used for the two hypotheses related to the effect of sex on the dependent variables.

Results

Since two affective dependent variables were observed in this study, there are two separate hypotheses stated for testing the effect of the curricular treatment. The first hypothesis relates to the effect of the treatment upon attitudes toward physical education as an activity course in the school curriculum. The second hypothesis deals with the effect of the treatment upon the subject's commitment to the profession of teaching physical education.

Hypothesis 1

The experimental, value-laden, group (VAL-LAD) will demonstrate a more positive attitude toward physical education as an activity course than will the control, non-value-laden, group (NON-VAL).

Data were collected using the Wear Inventory which has a maximum score of 200. In addition to the two treatment categories, the distribution of scores was divided into two categories: (1) the median and below, 131-167 and (2) above the median, 168-192. The resulting contingency table appears below with the observed cell frequencies.

The sixteen subjects in the VAL-LAD group (8 male and 8 female) and the thirteen subjects in the NON-VAL group (7 male and 6 female) are those subjects from the original sample of fifty-three who completed at least five of the six modules, and from whom posttest scores were obtained.

Table 1. Contingency Table for Hypothesis 1

		TREATMENT		
		NON-VAL	VAL-LAD	
WEAR SCORE	131-167	8	7	15
	168-192	5	9	14
		13	16	29

It can be seen that nine of the VAL-LAD subjects (or 56 per cent) appear in the high category; and only five of the NON-VAL subjects (38 per cent) scored above the median on attitude toward physical education as an activity course.

Hypothesis 2

The experimental, value-laden, group (VAL-LAD) will demonstrate a higher level of commitment to teaching physical education than will the control, non-value-laden, group (NON-VAL).

Data for Table 2 were collected using the Professional Opinion Survey, an instrument developed by the investigator. The maximum score on this survey is 125 and the median for the twenty-nine subjects was 97. The distribution of scores was divided into two categories: (1) the median and below, 74-97 and (2) above the median, 98-120. The two-level treatment factor and the twenty-nine subjects are the same as for Table 1.

Table 2. Contingency Table for Hypothesis 2

POS SCORE	TREATMENT: NON-VAL	TREATMENT: VAL-LAD	
74-97	8	7	15
98-120	5	9	14
	13	16	29

Again, nine of the sixteen VAL-LAD subjects appear in the high commitment category; whereas only five of the thirteen NON-VAL subjects scored above the median on commitment to teaching physical education. The input data list shows that the identical cell frequencies in Tables 1 and 2 result from the same subjects scoring in the high category on both dependent variables. This association was investigated further with a larger subject group and will be discussed following Table 7.

Statistics for Treatment Effects

The statistics for hypotheses 1 and 2 are given in Table 3. The probability level for each statistic is included in parentheses. Since all expected cell frequencies were five or greater in these two-by-two contingency tables, the Chi Square statistic was used to test for a systematic relationship between dependent and independent variables. In spite of the fact that the total number of subjects was not greater than forty, the corrected Chi Square statistic computed as part of the CROSSTABS program was used. The Yates correction for continuity is an attempt to minimize the error of using a continuous distribution (Chi Square) to approximate a discrete distribution.

The asymmetric lambda has a value from 0 to 1 and was calculated to show the strength of the association between dependent and independent variable categories.

Table 3. Statistics for Hypotheses 1 and 2

	Corrected Chi Square	Asymmetric Lambda
Hypothesis 1	$X^2 = 0.336$ (P = 0.562)	$\lambda = 0.143$
Hypothesis 2	$X^2 = 0.336$ (P = 0.562)	$\lambda = 0.143$

The statistics in Table 3 indicate that no significant systematic relationship was found between treatment category and two attitudinal variables, namely, attitude toward physical education as an activity course and commitment to teaching physical education. In other words, these experimental hypotheses cannot be accepted, and it cannot be concluded that the value-laden modules had any significant effect on the subjects' attitude scores. Examination of Tables 1 and 2 reveals, however, cell frequencies which in each case are directionally congruent with the research hypotheses. The lambda statistic indicates that the ability to predict score category when treatment category is known is improved by fourteen per cent.

Hypothesis 3

Female physical education majors will demonstrate a more positive attitude toward physical education as an activity course than will male majors.

For Table 4 the two dependent variable categories are low and high scores on the Wear Inventory: (1) the median and below, and (2) above the median. The two-category independent variable is sex. Forty-five scores are considered in the analysis of the effect of sex on Wear Inventory Scores. This means that, since all students taking the posttest were majors, posttest data were included without regard to whether a student was in the value-laden, non-value-laden or non-participating group. Therefore, cell frequencies are larger than for Tables 1 and 2. An identical Chi Square statistic was found, however, when the analysis for sex effect was done across only the experimental and control groups with twenty-nine subjects.

Table 4. Contingency Table for Hypothesis 3

WEAR SCORE	SEX: MALE	SEX: FEMALE	
131-167	14	9	23
168-192	8	14	22
	22	23	45

Of the twenty-three females who took the Wear Inventory posttest, fourteen scored above the median (61 per cent), whereas only eight of the twenty-two males (36 per cent) scored in the high category.

Hypothesis 4

Female physical education majors will demonstrate a higher level of commitment to teaching physical education than will male majors.

For Table 5 the two dependent variable categories are low and high scores on the Professional Opinion Survey: (1) the median and below, and (2) above the median. The two-category independent variable is sex. Forty-five scores were considered in this analysis.

Table 5. Contingency Table for Hypothesis 4

POS SCORE	SEX: MALE	SEX: FEMALE	
74-97	13	10	23
98-120	9	13	22
	22	23	45

On the Professional Opinion Survey, thirteen of the twenty-three female subjects (56 per cent) scored above the median, and only nine of the twenty-two males (41 per cent) scored above the median.

Statistics for Sex Effects

The Chi Square and Lambda statistics for hypotheses 3 and 4 are given in Table 6 with the probability level for the Chi Square statistic included in parentheses.

Table 6. Statistics for Hypotheses 3 and 4

	Corrected Chi Square	Asymmetric Lambda
Hypothesis 3	$X^2 = 1.81$ (P = .178)	$\lambda = 0.227$
Hypothesis 4	$X^2 = 0.56$ (P = .454)	$\lambda = 0.136$

The statistics given in Table 6 were calculated to test the effect of sex on Wear Inventory scores (hypothesis 3) and on Professional Opinion Survey scores (hypothesis 4). The largest Chi Square value in the overall analysis was found for hypothesis 3 with the resulting probability of 0.178. The Asymmetric Lambda of 0.227 for hypothesis 3 also is the strongest association found between independent and dependent variables. For both hypotheses the proportional cell frequencies, although not significantly different, are congruent with the directional statements.

The Wear Inventory was originally developed for college male subjects (Wear 1951). It was subsequently accepted for use with college female subjects (Broer 1955) and adapted

for use with other populations. No previous studies have been reported in which the Wear Inventory was used to measure the attitudes of college physical education majors.

The statistics for hypothesis 4 indicate that there is no significant relationship between sex and scores on the Professional Opinion Survey. This instrument was developed for use specifically with physical education majors. In contrast to earlier instruments (Meyne 1964; Thornburg 1967), it was designed and pilot tested for both male and female majors. No significant difference was found between the scores of 39 male and 16 female majors in the pilot test results.

Discussion

Two topics which were not directly related to the experimental design and hypotheses are presented for discussion at this point. The first has to do with the observed group means and the second is related to the independence of the two dependent measures.

Examination of group means

It has been noted by the investigator that many studies which have been reported have analyzed attitudinal data by a parametric comparison of group mean scores. Since composite affective scores of the nature being observed in this study are essentially ordinal and not interval data, the nonparametric statistical analysis was used in this study. However, when the data were examined for range and median,

the group means were calculated for the experimental (VAL-LAD) group, the control (NON-VAL) group, the combined twenty-nine cooperating subjects, and the total forty-five students who completed the attitude posttests. These means for the Wear Inventory were 171.06, 166.08, 168.19 and 168.60, respectively. For the same four groups, the means for the Professional Opinion Survey were 99.63, 94.46, 97.06 and 96.62 respectively.

Mean scores of 155 on the Wear Inventory have been reported for both men and women non-major college students (Wear 1951; Broer 1955). The highest possible score on the Professional Opinion Survey is 125.

It can be noted that the difference between the experimental and control group means is five points for each survey in favor of the experimental group. No statistical comparisons were made, however, since the analysis of data for this investigation utilized accepted nonparametric procedures as described in chapter three and presented earlier in this chapter.

Correlation of Dependent Measures

One of the assumptions underlying the design and instrumentation of this study was that attitude, or commitment, toward the profession of teaching physical education is separate from attitude toward physical education as an activity course. This assumption was tested by calculating Chi Square and Lambda statistics for these two sets of

attitude data. In Table 7, the attitude data are displayed with two categories for each of the surveys, thus providing the two-by-two table. The total posttest group of forty-five subjects was used in this comparison.

Table 7. Relationship of Two Dependent Variable Scores

WEAR SCORE	POS SCORE 74-97	POS SCORE 98-120	
131-167	17	6	23
168-192	6	16	22
	23	22	45

The corrected Chi Square statistic for the above table was found to be 8.01 with a probability of .005. The Lambda coefficient of association was 0.455. Since there was no formal hypothesis relating to this comparison, no statistical conclusion was made. However, the high degree of positive association between the results of the two attitude surveys indicates that further work must be done to test the independence of these measures. It may be that assumption 7 in chapter one will be proven invalid. On the other hand, these findings could be used in support of the Professional Opinion Survey as a valid attitude measurement instrument in physical education.

Interpretation

The control group posttest only experimental design was selected for this study to preclude the sensitization effect of a pretest which must be considered a competing variable or rival hypothesis (Campbell and Stanley 1973) in experimental attitude studies. An attempt also was made to disguise the affective nature of the treatment as well as the purpose of the posttest.

The intent of the experimental treatment in this study, and undoubtedly the direct or indirect intent of much curricular planning, was to bring about a change in attitudes in a specific direction. Some theoretical framework for understanding attitude change may be helpful in interpreting the findings and in considering potential reasons for a lack of significant results.

Kelman (1967) suggests that different levels of attitude change correspond to differences in the process whereby the subject accepts influence. Three levels and mediating processes are included in Kelman's framework. Compliance operates best under a condition of surveillance by a communicator. Identification as a mediating process depends upon the attractiveness of the communicator and upon the salience of the subject's relationship with the communicator. Finally, internalization is most likely to occur if there is high credibility of content and optimal relevance of an issue to the needs of the subject.

The value-laden treatment modules in this study were designed to improve attitudes at the internalization level

by means of the reading and writing participation of the subjects. The compliance and identification levels, although not neglected, were of little import in the overall strategy of the treatment. The desired outcome was an attitude change at Krathwohl's (1964) 3.0 level of valuing which implies a greater prospect for long-range behavior change than does lower level conforming changes (Krathwohl 1964).

More emphasis upon Kelman's (1967) compliance and identification mediating processes, however, may have contributed to greater attitude change. In this study the control and surveillance of the voluntary subjects by the investigator was minimal. The out-of-class completion of the treatment modules was necessary, but it allowed for possible inter-subject and intergroup discussion of the content and nature of the modules. Identification of the subjects with the investigator was also minimal and there was not a salient on-going relationship between subjects and researcher.

A simpler framework for analyzing the effectiveness of attitude change efforts has been presented by Neulinger (1976). He suggests that three aspects of attitude change strategies need to be considered: the communicator, the communication and the audience. Applying such a framework to the design and procedures of this study allows further possible explanation of the nonsignificant outcomes.

The actual communicator in the treatment was the author of the value-laden content. An attempt was made to include

some material by well-known physical educators, but this was not the case in each value-laden module. The lack of an established relationship between the investigator and subjects may have minimized the effectiveness of the real communicator.

The communication aspect of Neulinger's framework for this study was the positive value position and statements in the value-laden modules. These strong positive value statements by the authors may have, in fact, represented a relatively small communication discrepancy for the physical education majors who chose to participate in the study. In other words, the audience in the framework may have been a select group with an already strong positive attitude toward physical education and physical education teaching.

In addition to the theoretical approaches presented above, several studies reviewed in chapter two included material pertinent to a clearer interpretation of the results of this study. None of the five studies discussed in the final section of chapter two were related to physical education. However, their treatment, procedures and findings relate indirectly to this study and are discussed further at this point.

Howell (1973) and Prothers and Ehlers (1974) reported no significant change in specific attitudes when the treatment consisted of a printed manual or programmed materials respectively. When more active participation was required of subjects by means of discussion, role playing or simulation,

Alpert (1965), Domyahn (1972) and Hegarty (1975) each reported significant attitude improvement following the treatment.

In designing curricular experiences for undergraduate physical education majors, the challenge may be to discover an optimal combination of reading, writing, discussing, role playing, performing and conducting research activities for affective as well as cognitive and psychomotor outcomes. Indeed, significant changes in human attitudes and behavior rarely result from a few random encounters; rather a planned systematic progression in curriculum development should be intelligently devised and rigorously implemented (Goodlad 1966). Such well-planned curriculum activities should make use of a variety of mediating processes (Kelman 1967), summation or repetition theory (Anderson and Fishbein 1965), and active participation by the subjects (Alpert 1965; Domyahn 1972; Hegarty 1975).

Summary

Table 8 gives the nonparametric statistics, corrected Chi Square and Asymmetric Lambda for each of the four hypotheses tested in this analysis.

Table 8. Summary Statistics

Experimental Hypothesis	X^2	λ
1. The VAL-LAD group will demonstrate a more positive attitude toward physical education as an activity course than will the NON-VAL group.	0.336 (P = .562)	0.143
2. The VAL-LAD group will demonstrate a higher level of commitment to teaching physical education than will the NON-VAL group.	0.336 (P = .562)	0.143
3. Female physical education majors will demonstrate a more positive attitude toward physical education as an activity course than will male majors.	1.811 (P = .178)	0.227
4. Female physical education majors will demonstrate a higher level of commitment to teaching physical education than will male majors.	0.561 (P = .454)	0.136

None of the Chi Square statistics indicated a significant treatment effect upon attitude of subjects toward physical education as an activity course or upon commitment to teaching physical education. Cell frequencies in each contingency table for treatment effects were, however, directionally congruent with hypotheses 1 and 2.

Likewise, the Chi Square statistics showed no significant sex effect upon either dependent variable. The cell frequencies in Tables 4 and 5 were again congruent with hypotheses 3 and 4. The Lambda statistics show that the ability to predict the dependent variable category is somewhat but not greatly improved when the independent variable category is known.

Table 7 displayed the relationship between the scores on the two survey instruments used in the study. The highly significant Chi Square statistic for that contingency table indicates that the observed cell frequencies are, in fact, different than would be expected if there was no association between dependent variables.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Chapter five includes a summary of the study, conclusions based on the analysis of the findings, and recommendations for further research.

Summary

The term attitude has been used frequently in psychological literature for more than one hundred years. Only since approximately 1930, however, have instruments been available for the measurement of attitudes as psychosocial entities. Although educators have been hesitant to espouse attitude development and attitude change as important objectives in the educational process, leaders now are insisting that more specific and systematic attention be given to outcomes in the affective domain. This recent concern for desirable attitudinal outcomes is very important to physical education at all levels. Numerous studies, some of which have been done in physical education, have investigated the effects of courses, or planned experiences within courses, on attitude change (Goldberger 1970; Howell 1973; Hegarty 1975).

The purpose of this study was to investigate the effects of a series of self-administered, value-laden curriculum modules and sex upon the attitude of undergraduate physical

education majors toward physical education as an activity course and upon commitment to teaching physical education as a profession. Two series of six modules each were designed and distributed for completion at the rate of one module per week for six weeks. The experimental modules were designed as value-laden, or carrying a positive message about physical education. The control or non-value-laden modules were similar in all respects except that the content was informational with no positive or negative loading regarding the profession.

Data were collected by using two attitude survey instruments in a posttest only design. The Wear Inventory (1951) was employed to measure attitude of subjects toward physical education as an activity course in the schools. A new instrument was developed as a part of this study to assess the level of commitment of majors to the profession of teaching physical education. Both surveys were used to collect posttest data from forty-five physical education majors enrolled in the same course in the professional preparation program at Michigan State University. Sixteen of these subjects (eight males and eight females) completed at least five value-laden modules and thirteen subjects (seven males and six females) completed at least five of the non-value-laden modules in accordance with the initial random assignment of subjects. Therefore, in testing the hypotheses relating to treatment, the scores from twenty-nine subjects were considered; while in testing the hypotheses regarding the relationship between sex and attitude, all forty-five scores were considered.

The results of the two surveys were categorized and analyzed as nominal data by the CROSSTABS nonparametric technique in Statistical Programs for the Social Sciences (Nie et al. 1970). Two categories were used in the contingency table for each dependent variable. These categories were: (1) the median and below, and (2) above the median. Since there were two treatment groups (VAL-LAD and NON-VAL) as well as two sex categories, the contingency tables related to the hypotheses were two-by-two tables.

The corrected Chi Square statistic indicated no significant difference in the proportion of experimental subjects scoring in the high category when compared to the control subjects. The effect of sex on the dependent variables, although not statistically significant, was stronger for the Wear Inventory than for the Professional Opinion Survey.

Conclusions

Based on the limitations, procedures and analyses of this study, the following conclusions are stated.

1. The voluntary completion of a series of six value-laden curriculum modules does not significantly affect the attitude of physical education majors toward physical education as an activity course in the schools.

2. The voluntary completion of a series of six value-laden curriculum modules does not significantly affect the level of commitment of physical education majors to the profession of teaching physical education.

3. There is no significant difference between men and women physical education majors on attitude toward physical education as an activity course.

4. There is no significant difference between men and women physical education majors on level of commitment to teaching physical education.

5. There is a stronger association between sex and attitude toward physical education as an activity course, than there is between sex and commitment to teaching physical education.

6. The Professional Commitment Survey is a valid and reliable instrument for measuring the level of commitment of men and women physical education majors to the profession of teaching physical education.

The first five conclusions are based on contingency Tables 1, 2, 4 and 5 respectively, and on statistical Tables 3 and 6. Conclusion number five is based on pilot test results presented in chapter three and on Table 7 which displays the significant strong relationship between the Professional Commitment Survey instrument and the long-established Wear Inventory.

The findings corroborate for this subject group what others (Howell 1973; Prothers and Ehlers 1974) had found when using short-term treatments consisting of a printed manual or other programmed reading materials. This does not mean that the goal of attitude change with physical education majors is not a viable one. It does suggest, however, that multiple strategies, including more active subject involvement with the communicator (Neulinger 1976), should be employed.

After five weeks of involvement in a society simulation game, Hegarty (1975) found significant improvement in subjects' attitudes toward community. Sheehan (1965) and Alsop (1968) also found improvement in attitudes toward cooperation

after several weeks of involvement in a value-laden sport unit in soccer.

The professional attitudes of physical education majors are undoubtedly influenced by a variety of positive and negative experiences occurring on a random basis. Significant desirable changes in these attitudes will require well-planned integrated efforts throughout the undergraduate professional preparation.

Recommendations

The following recommendations are given as a result of the planning, completion, analysis and interpretation of this investigation. It is hoped that further work will continue the search for viable strategies and experiences for positive affective outcomes in undergraduate physical education majors.

1. The effects of active discussion, role plays, or more rigorous written responses in conjunction with the completion of the modules should be investigated.

2. Further research is needed regarding the relationship between sex and the attitudes of physical education majors toward physical education and teaching physical education.

3. Research should be conducted leading to the refinement of the Professional Opinion Survey as an instrument for use with male and female physical education majors.

APPENDICES

APPENDIX A

WEAR INVENTORY

(SHORT FORM)

WEAR INVENTORY*

Instructions
(Please read carefully)

Below you will find some statements about physical education. We would like to know how you feel about each statement. You are asked to consider physical education only from the standpoint of its place as an activity course taught during a regular class period. No reference is intended in any statement to interscholastic or intramural athletics. People differ widely in the way they feel about each statement. There are no right or wrong answers.

You have been provided with a separate answer sheet for recording your reaction to each statement. (a) Read each statement carefully, (b) go to the answer sheet, and (c) opposite the number of the statement place an "x" in the square which is under the word (or words) which best expresses your feeling about the statement. After reading a statement you will know at once, in most cases, whether you agree or disagree with the statement. If you agree, then decide whether to place an "x" under "agree" or "strongly agree". If you disagree, then decide whether to place the "x" under "disagree" or "strongly disagree". In case you are undecided (or neutral) concerning your feeling about the statement, then place an "x"

---

*Reprinted with permission of the publisher from Research Quarterly. Washington D.C.: American Association for Health, Physical Education, and Recreation, vol. 22, 1951, pp. 114-126.

under "undecided". Try to avoid placing an "x" under "undecided" in very many instances.

Whenever possible, let your own personal experience determine your answer. Work rapidly, do not spend much time on any statement. This is not a test, but is simply a survey to determine how people feel about physical education. Your answers will in no way affect your grade in any course. In fact, we are not interested in connecting any person with any paper - so please answer each statement as you actually feel about it. Be sure to answer every statement.

WEAR INVENTORY

Short Form

1. If for any reason a few subjects have to be dropped from the school program, physical education should be one of the subjects dropped.

2. Associations in physical education activities give people a better understanding of each other.

3. Physical education activities provide no opportunities for learning to control the emotions.

4. Engaging in vigorous physical activity gets one interested in practicing good health habits.

5. Physical education is one of the more important subjects in helping to establish and maintain desirable social standards.

6. The time spent in getting ready for and engaging in a physical education class could be more profitably spent in other ways.

7. Vigorous physical activity works off harmful emotional tensions.

8. A person's body usually has all the strength it needs without participation in physical education activities.

9. I would take physical education only if it were required.

10. Participation in physical education activities tends to make one a more socially desirable person.

11. Participation in physical education makes no contribution to the development of poise.

12. Physical education in schools does not receive the emphasis that it should.

13. Because physical skills loom large in importance in youth, it is essential that a person be helped to acquire and improve such skills.

14. Physical education classes are poor in opportunities for worthwhile social experiences.

15. Calisthenics taken regularly are good for one's general health.

16. A person would be better off emotionally if he did not participate in physical education.

17. Skill in active games or sports is not necessary for leading the fullest kind of life.

18. It is possible to make physical education a valuable subject by proper selection of activities.

19. Physical education does more harm physically than it does good.

20. Developing a physical skill brings mental relaxation and relief.

21. Associating with others in some physical education activity is fun.

22. Physical education classes provide nothing which will be of value outside of the class.

23. Physical education classes provide situations for the formation of attitudes which will make one a better citizen.

24. There should not be over two one-hour periods per week devoted to physical education in schools.

25. Physical education situations are among the poorest for making friends.

26. Belonging to a group, for which opportunity is provided in team activities, is a desirable experience for a person.

27. There is not enough value coming from physical education to justify the time consumed.

28. Physical education is an important subject in helping a person gain and maintain all-round good health.

29. Physical education skills make worthwhile contributions to the enrichment of living.

30. No definite beneficial results come from participation in physical education activities.

31. People get all the physical exercise they need in just taking care of their daily work.

32. Engaging in group physical education activities is desirable for proper personality development.

33. All who are physically able will profit from an hour of physical education each day.

34. Physical education activities tend to upset a person emotionally.

35. Physical education makes a valuable contribution toward building up an adequate reserve of strength and endurance for everyday living.

36. For its contributions to mental and emotional well-being, physical education should be included in the program of every school.

37. Physical education tears down sociability by encouraging people to attempt to surpass each other in many of the activities.

38. I would advise anyone who is physically able to take physical education.

39. Participation in physical education activities makes for a more wholesome outlook on life.

40. As far as improving physical health is concerned a physical education class is a waste of time.

APPENDIX B

LETTER INCLUDING AFFECTIVE TAXONOMY EXCERPTS AND THIRTY-ONE INITIAL PROFESSIONAL OPINION SURVEY (POS) ITEMS FOR JUDGES' RATINGS

February 10, 1977

Dr. & Mrs. Charles Kuntzleman
Harmony Rd.
Spring Arbor, Michigan 49283

Dear Charlie & Beth:

The research which I am proposing for my dissertation project at Michigan State deals with the effect of value-laden curricular modules upon the attitudes of physical education majors (1) toward physical education as a part of the school curriculum and (2) toward physical education as a profession. The instrument to be used in measuring the former attitude has been selected and is one which has been widely used over the last twenty years. I am writing to request your assistance in the construction of a simple scale to assess the attitude of majors toward the profession of teaching physical education.

The particular affective characteristic which I am most interested in getting at is described by Krathwohl et al., as "commitment". The object, of course, will be physical education as a profession. The excerpts from Taxonomy of Educational Objectives: Handbook II - Affective Domain given below describe this dependent variable.*

Taxonomy categories and their subdivisions are:

1.0 Receiving (attending)
- 1.1 Awareness
- 1.2 Willingness to receive
- 1.3 Controlled or selected attention

2.0 Responding
- 2.1 Acquiescence in responding
- 2.2 Willingness to respond
- 2.3 Satisfaction in response

3.0 Valuing
- 3.1 Acceptance of a value
- 3.2 Preference for a value
- 3.3 Commitment (conviction)

---

*From TAXONOMY OF EDUCATIONAL OBJECTIVES: The Classification of Educational Goals: HANDBOOK 2: AFFECTIVE DOMAIN by David R. Krathwohl et al. Copyright © 1964 by Longman Inc. Reproduced with permission of Longman Inc., New York.

4.0 Organization
- 4.1 Conceptualization of a value
- 4.2 Organization of a value system

5.0 Characterization by value or value complex
- 5.1 Generalized set
- 5.2 Characterization

The explanation of levels 3.0 and 3.3 of the Taxonomy are quoted below.

3.0 VALUING

This is the only category headed by a term which is in common use in the expression of objectives by teachers. Further, it is employed in its usual sense: that a thing, phenomenon, or behavior has worth. This abstract concept of worth is in part a result of the individual's own valuing or assessment, but it is much more a social product that has been slowly internalized or accepted and has come to be used by the student as his own criterion of worth.

Behavior categorized at this level is sufficiently consistent and stable to have taken on the characteristics of a belief or an attitude. The learner displays this behavior with sufficient consistency in appropriate situations that he comes to be perceived as holding a value. At this level, we are not concerned with the relationships among values, but rather with the internalization of a set of specified, ideal, values. Viewed from another standpoint, the objectives classified here are the prime material from which the conscience of the individual is developed into active control of behavior.

This category will be found appropriate for many objectives that use the term "attitude" (as well as, of course, "value").

An important element of behavior characterized by valuing is that it is motivated, not by the desire to comply or obey, but by the individual's commitment to the underlying value guiding the behavior.

3.3 COMMITMENT

Belief at this level involves a high degree of certainty. The ideas of "conviction" and "certainty beyond a shadow of a doubt" help to convey further the level of behavior intended. In some instances this may border on faith, in the sense of it being a firm emotional acceptance of a belief upon admittedly nonrational grounds. Loyalty to a position, group, or cause would also be classified here.

The person who displays behavior at this level is clearly perceived as holding the value. He acts to further the thing valued in some way, to extend the possibility of his developing it, to deepen his involvement with it and with the things representing it. He tries to convince others and seeks converts to his cause. There is a tension here which needs to be satisfied; action is the result of an aroused need or drive. There is a real motivation to act out the behavior.

I anticipate using a Likert-type response scale for each item. This means the subject may respond to a specific statement by strongly agreeing; agreeing; indecision; disagreeing; strongly disagreeing. For positively stated items the scores would be from 5 to 1 and for negatively stated items, from 1 to 5.

Would you please take a few minutes to:

(1) Review the enclosed lists of statements and add several statements which you feel might discriminate among majors as to commitment and professional motivation. (Please comment and/or edit existing items, too.)

(2) Assign a weighting (using left margin) to each statement. Please base the assigned weight upon the statement's relevance to professional commitment and upon semantic quality. Use weighting of 5-4-3-2-1 with 5 being good and 1 being poor.

The top 10 or more items from the positive and negative lists based on input from judges will be combined into an attitude survey and pilot tested with item analysis and reliability checks. This pilot form will be checked for validity against a selected criterion measure.

As I mentioned above, this is only part of the data collection instrumentation for the project. However, I feel that it might well get at an important dimension related to success in our field. Thank you for your assistance. I will be happy to share the results of the project with you at a later time.

Thanks again.

Sincerely,

Ted Comden

POTENTIAL POSITIVELY-STATED AGREE-DISAGREE ITEMS

FOR PROFESSIONAL OPINION SURVEY

_____ I am looking forward to participating in some form of organized recreation league in at least one sport.

_____ It is important for physical educators to read outside their field and attend a variety of cultural activities.

_____ An overweight physical educator is an embarrassment to the profession.

_____ I find a great deal of satisfaction in helping people become "sold" on physical fitness.

_____ I am eager to get a teaching (or other) position in physical education so I can help young people.

_____ As a professional physical educator I will feel a responsibility to convince everyone - not just students - of the benefits of physical activity.

_____ I feel like I have the knowledge, skills and enthusiasm to make a contribution through PE even if it were abolished as a part of the school curriculum.

_____ I look forward to trying new ways of doing things.

_____ I enjoy the stimulation of associating with others who are anticipating the same kind of professional work as I am.

_____ I am anxious to get a teaching job so I can begin to apply the skills and knowledge I have learned.

_____ When I get situated in a job, I look forward to taking graduate classes or special professional certification courses.

_____ I would be eager to present the case for physical education in front of my school board.

_____ I plan to use basic concepts regarding the principles of training and the benefits of activity in my teaching, as well as skill learning and fitness activities.

_____ I feel that physical education in the schools should have an effect on the later adult life of the students.

_____ I will feel disappointed if my students do not show an increased appreciation for recreational sport and regular physical activity.

Please put weighting (5 is good and 1 is bad) in the left hand margin and write additional positive statements on the back.

POTENTIAL NEGATIVELY-STATED AGREE-DISAGREE ITEMS

FOR PROFESSIONAL OPINION SURVEY

_____ When students approach their teacher or coach with personal problems it is a bother.

_____ The personal habits and life-style of physical educators are of no importance to anyone but themselves.

_____ The quality of a school physical education program is mainly a matter of budget and school board policy.

_____ I will get more satisfaction from coaching than from teaching.

_____ The current mood of public "accountability" for education means that we might as well forget about improving our physical education programs in the schools.

_____ I will probably teach pretty much like my high school teacher did.

_____ I don't have the patience to work well with poorly skilled persons.

_____ I feel that most students prefer a highly regimented class structure so everyone is treated the same.

_____ I am only interested in teaching physical education because it will give me a chance to coach.

_____ Within a group of PE majors, the persons with the highest sports skill levels usually make the best physical education teachers.

_____ I would be more likely to spend $20.00 allocated for a subscription, on Sports Illustrated than on the Journal of Physical Education and Recreation.

_____ The idea of attending a physical education convention doesn't appeal to me.

_____ I am looking forward to not attending classes for a long time.

_____ If I am faced with a situation in which I will need to work hard to "sell" total well-rounded physical education to my superiors or find another position, I would probably move.

_____ I believe that physical education has a great deal to offer the individual - and our society today - but "educating" the public is too big a job.

_____ I really don't see much difference between PE and athletics.

Please put weighting (5 is good and 1 is bad) in the left hand margin and write additional negative statements on the back.

APPENDIX C

SECOND LIST OF PROFESSIONAL OPINION SURVEY ITEMS FOR RATING BY DIFFERENT JUDGES

POTENTIAL POSITIVELY-STATED AGREE-DISAGREE ITEMS

FOR PROFESSIONAL OPINION SURVEY

1. I am interested in life-long learning and intend to pursue such a goal in my chosen field.

2. I think physical education majors should be required to pass a comprehensive fitness test before graduation.

3. After several years of teaching, I would like to run for an office in our state association for physical education.

4. If time and equipment is available, I think making our own film loops in class would be a good learning experience.

5. Community involvement for the physical educator or coach is well worth the time and energy involved.

6. I like to read research reports in physical education outside my class requirements.

7. I would be eager to help organize a club for physical education majors.

8. I have never seriously thought of changing my major.

9. I would like to join the national physical education association as a student member.

10. I believe the physical educator has the responsibility as well as the opportunity to assist in the character building of children.

11. I am in favor of school recreation facilities being available to the community.

POTENTIAL NEGATIVELY-STATED AGREE-DISAGREE ITEMS

FOR PROFESSIONAL OPINION SURVEY

1. I have thought frequently of changing to some major other than physical education.

2. When I am in an interdisciplinary academic setting, I am self-conscious about saying that I am majoring in physical education.

3. Learning new sports skills after being certified to teach is of little value.

4. If a local youth-serving agency requests help with a special program, I will try to find an excuse.

5. Physical education teachers have good excuses for not attending regular faculty meetings.

6. I would prefer to teach in my minor area so that I can be in the classroom.

7. Coaches should not be expected to serve on faculty curriculum or evaluation committees.

8. Membership in cheerleading and marching band constitute legitimate reasons to be excused from physical education classes.

9. If students are handicapped so that they cannot participate in the scheduled physical education activity, they should be sent to the study hall or homeroom.

10. Formulating objectives and planning curriculum are jobs I would rather let others do.

11. After graduation I will only take courses which are required for permanent certification.

12. I plan to teach physical education until some good business opportunity comes along.

13. Field experiences such as observing experienced teachers and attending sports clinics are of little value for me as a future teacher.

14. I will take another type of job rather than teach physical education in a poor rural school district.

15. Research in physical education is of little value to the teacher.

16. If I feel that budget cuts are hurting our physical education program, I will apply for an opening in a classroom assignment in my minor area.

17. Testing and reporting grades are not essential parts of teaching and learning in physical education.

18. I would not spend one evening a week supervising intramurals unless I received extra pay.

19. Physical education instruction can do little to influence future recreational behavior of students.

20. Dance is not an integral part of physical education.

APPENDIX D

SEVEN ITEMS ADDED TO PROFESSIONAL OPINION SURVEY AFTER SUGGESTIONS FROM JUDGES

ITEMS ADDED TO PROFESSIONAL OPINION SURVEY

AFTER SUGGESTIONS FROM JUDGES

1. A philosophy of education is important for teaching physical education.
2. I view students in a gymnasium as whole persons - moving, thinking and feeling.
3. Promoting physical education and physical fitness is part of being a physical education teacher.
4. A personal professional library is important for the physical educator.
5. The increased number of coeducational activities in school physical education offerings is an opportunity to better meet student needs.
6. I appreciate a difficult class assignment since I know I can learn a great deal in the process of completing it.
7. Study guides and written tests are of little importance in high school physical education classes.

APPENDIX E

PRELIMINARY FORM OF PROFESSIONAL OPINION SURVEY AND THE SELF-RATING FORM

PROFESSIONAL OPINION SURVEY

INSTRUCTIONS

Contained in this survey you will find fifty statements or situations related to the roles of the physical education teacher or prospective teacher. People will differ in the way they feel about each item. There are no right or wrong answers.

You have been provided with a separate answer sheet for recording your response to each item. Read each item carefully. Then go to the answer sheet and darken the space under your selected response. The five spaces for each item always read from left to right are: strongly agree (SA), agree (A), undecided (U), disagree (D), and strongly disagree (SD). These abbreviated column headings appear on the response sheet.

Let <u>your</u> own feelings about the statement, or how you feel <u>you</u> would react to a situation, be the guide in your responses. In most cases you will know immediately whether you agree or disagree. You should then decide whether you strongly agree or agree, or whether you disagree or strongly disagree, before filling in your response. Work rapidly without spending a great deal of time on any one item. Use the undecided response column only when it actually represents your feeling about an item.

Please be sure to <u>respond to every statement</u>.

Thank you.

PROFESSIONAL OPINION SURVEY

1. I look forward to trying new ways of doing things in my teaching.

2. I feel that physical education in the schools should have an effect on the later adult life of the student.

3. I am anxious to get a teaching job so I can begin to apply the things I am learning.

4. I will take another type of job rather than teach physical education in a poor rural school district.

5. Community involvement by the physical educator is well worth the time and energy required.

6. When I get situated in a job, I look forward to taking graduate classes or special professional certification courses.

7. Study guides and written tests are of little importance in high school physical education classes.

8. I have often thought of changing my major to something other than physical education.

9. I will feel disappointed if my students do not show an increased appreciation for recreational sports and regular physical activity.

10. Within a group of physical education majors, the persons with the highest sports skill levels usually make the best teachers.

11. I am eager to get a teaching position in physical education so I can help young people.

12. I plan to use basic concepts regarding the benefits of physical activity, as well as skill and fitness development, in my teaching.

13. Coaches should not be expected to serve on curriculum or evaluation committees.

14. I will probably teach pretty much as my high school physical education teacher did.

15. I am interested in life-long learning and intend to pursue such a goal in my chosen field.

16. I prefer to work with highly skilled persons.

17. During my first year of teaching, I probably will not take time to attend a physical education convention.

18. I believe that physical education has a great deal to offer the individual - and our society - but educating the public is too big a job.

19. Physical education majors should be required to pass a comprehensive physical fitness exam before graduation.

20. Physical education and athletics are really quite similar.

21. I am interested in teaching physical education because it will give me a chance to coach.

22. I appreciate a difficult class assignment since I know I will learn a great deal in the process of completing it.

23. I would prefer to teach in my minor area so that I could be in the classroom.

24. I will get more information about my profession from Sports Illustrated than from the Journal of Physical Education and Recreation.

25. A philosophy of education is important for teaching physical education.

26. When I am in an interdisciplinary academic setting, I am self-conscious about saying that I am a physical education major.

27. I will probably teach physical education until some good business opportunity comes along.

28. The quality of a school physical education program is mainly a matter of budget and school board policy.

29. It is important for physical educators to read outside their field and to attend a variety of cultural activities.

30. The personal habits and life styles of physical education teachers are their own business.

31. The increased number of coeducation activities in school physical education offerings is an opportunity to better meet student needs.

32. Promoting physical education and physical fitness is part of being a physical education teacher.

33. I view students in a gymnasium as whole - moving, thinking, feeling - persons.

34. Formulating objectives and planning curriculum are jobs I would rather let others do.

35. A personal professional library is important for the physical educator.

36. Dance is not an integral part of physical education.

37. I enjoy the stimulation of associating with others who are anticipating work in physical education.

38. An overweight physical educator is an embarrassment to the profession.

39. After graduation I will only take courses required for permanent certification.

40. Physical education instruction can do little to influence the future recreational behavior of students.

41. As a professional physical educator, I will feel a responsibility to convince everyone - not just my students - of the benefits of exercise.

42. I like to read research reports related to my class work in physical education.

43. If students are handicapped so that they cannot participate in the scheduled physical education activity, they should be sent to a study hall or homeroom.

44. I have never seriously thought of changing my major.

45. Field experiences such as observing experienced teachers and attending sports clinics are of little value for me as a future teacher.

46. As a new teacher, I would be eager to "present the case" for physical education before the school board.

47. I get a great deal of satisfaction from turning people on to physical fitness.

48. Membership in cheerleading or marching band are good enough reasons for students to be excused from physical education classes.

49. The physical educator has the responsibility as well as the opportunity to assist in the character-building of young people.

50. Learning new sports skills after being certified to teach is of little value.

GRAPHIC SELF-RATING Student Number_____

1. Please read carefully the two definitions given below.

   Commitment - Strong belief involving a high degree of certainty with resultant actions intended to further the object (physical education) in some way.

   Professional Commitment -Holding a strong belief in the value or worth of physical education with a high motivation to teach and act in such a way that will further the objectives of physical education and win converts to the cause.

2. With these definitions in mind please honestly place one " X " at the point (on or between the numbers) on the continuum which represents your current level of commitment to physical education teaching as a profession.

3. Be assured that your student number on this response sheet is only for the purpose of matching the Professional Opinion Survey, and will not be used to obtain names or other personal information.

xw _____ High

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

APPENDIX F

FINAL PROFESSIONAL OPINION SURVEY

PROFESSIONAL OPINION SURVEY

Instructions
(Please read carefully)

Contained in this survey you will find 25 statements of situations or opinions related to the roles of the physical education teacher. People will differ in the way they feel about each item. There are no right or wrong answers.

You have been provided with a separate MSU response sheet (yellow border) upon which to record your response to each item. Read each item carefully. Then go to the answer sheet and darken the space under your selected response. The five spaces for each item always read from left to right are: strongly agree (A); agree (B); undecided (C); disagree (D); and strongly disagree (E).

Let <u>your</u> own feelings about the statement, or how you feel <u>you</u> would react to a situation be the guide in your responses. In most cases you will know immediately whether you agree or disagree. You should then decide whether you strongly agree or agree, or whether you disagree or strongly disagree, before filling in your response. Work rapidly without spending a great deal of time on any one item. Use the undecided response column only when it actually represents your feeling about an item.

Please be sure to <u>respond to every statement</u>.

PROFESSIONAL OPINION SURVEY

1. I am anxious to get a teaching job so I can begin to apply the things I am learning.

2. I have often thought of changing my major to something other than physical education.

3. I am eager to get a teaching position in physical education so I can help young people.

4. I plan to use basic concepts regarding the benefits of physical activity, as well as skill and fitness development, in my teaching.

5. I am interested in life-long learning and intend to pursue such a goal in my chosen field.

6. I prefer to work with highly skilled persons.

7. Physical education majors should be required to pass a comprehensive physical fitness exam before graduation.

8. I would prefer to teach in my minor area so that I could be in the classroom.

9. I will get more information about my profession from Sports Illustrated than from the Journal of Physical Education and Recreation.

10. When I am in an interdisciplinary academic setting, I am self-conscious about saying that I am a physical education major.

11. I will probably teach physical education until some good business opportunity comes along.

12. It is important for physical educators to read outside their field and to attend a variety of cultural activities.

13. I view students in a gymnasium as whole - moving, thinking, feeling - persons.

14. Formulating objectives and planning curriculum are jobs I would rather let others do.

15. A personal professional library is important for the physical educator.

16. Dance is not an integral part of physical education.

17. I enjoy the stimulation of associating with others who are anticipating work in physical education.

18. As a professional physical educator, I will feel a responsibility to convince everyone - not just my students - of the benefits of exercise.

19. I like to read research reports related to my class work in physical education.

20. If students are handicapped so that they cannot participate in the scheduled physical education activity, they should be sent to a study hall or homeroom.

21. Field experiences such as observing experienced teachers and attending sports clinics are of little value for me as a future teacher.

22. As a new teacher, I would be eager to "present the case" for physical education before the school board.

23. I get a great deal of satisfaction from turning people on to physical fitness.

24. Membership in cheerleading or marching band are good enough reasons for students to be excused from physical education class.

25. Learning new sports skills after being certified to teach is of little value.

APPENDIX G

SAMPLE VALUE-LADEN MODULE

I. TITLES

"A Challenge Answered"
by
J. Edmund Welch

"Let's Do Away with P.E."
by
Candy Osterman

"To Those Who Would Improve Health"
by
Arthur H. Steinhaus

II. INSTRUCTIONAL OBJECTIVES

After reading the material in this module, the student will be able to:

1. **Recognize statements which assume a mind-body dichotomy.**
2. **Identify three societal problems to which subject matter in physical education is related.**
3. **Name at least three desirable outcomes students should gain from physical education experiences.**

A CHALLENGE ANSWERED*

On February 11, 1969, The Charleston Gazette of Charleston, West Virginia, published an editorial which advocated that school administrators abolish the practice of granting academic credit for physical education courses. The importance of any editorial from the Gazette as a means of influencing public opinion can be weighed when one considers these factors. The Gazette has the largest paid circulation of any paper in West Virginia (63,860). Charleston is the state capital, and many individuals and groups which help to form educational policies are residents of this city and readers of the Gazette. The central office of the Kanawha County Board of Education is located in Charleston. This combined city-county system has a total of 56,709 students which makes it by far the largest educational unit in the state. To add further import to this editorial, the State Legislature was in session at the time the piece appeared in print.

The author of this article was of the belief that the editorial should not go unchallenged. He prepared a rebuttal and submitted it to the editor of the Gazette. The actual editorial and the author's reply, most of which the Gazette published on February 26, are presented as follows:

The Charleston Gazette

Editorial - February 11, 1969

How Many Push-ups for "A" in Latin?

With the school system facing up to new challenges such as sex education, it seems to us that one small innovation would be in order at this time to correct what we have always believed to be an injustice.

Thas is, cease the practice of giving grades in physical education courses. Instead make physical education a pass-fail subject. Or simply require every student to take physical education and keep no records at all except attendance records.

---

*Reprinted with permission of author from Physical Education Reader: History and Foundations (Parsons, West Virginia: McClain Printing Company, 1974), pp. 196-97.

It is unjust - and slightly absurd - to give comparative grades in a course in which the outcome of tests rests essentially on the accident of physical endowment.

It is difficult to understand why school administrators didn't long ago abandon a system that permits physical education grades to lower (or raise) academic averages.

February 12, 1969

Editor
Charleston Gazette
Charleston, West Virginia

Dear Sir:

This is in reference to your editorial of February 11 in which you advocate that academic credit be withdrawn for physical education courses in school. Physical education is far more than push-ups or the physical prowess of the natural athlete, a fact that the ancient Greeks knew well. Their great civilization was nurtured in the three gymnasiums of Athens - the Academy, the Lyceum, and the Cynosarges. It was at the Academy that Plato held forth. Aristotle conducted his philosophic teachings at the Lyceum, and the Cynic philosophers gathered at the Cynosarges. Intellectual and physical education were unified in the Greek culture. They insisted that a man who was intellectually educated and not physically educated would eventually be the loser in life.

What are we teaching today in physical education? We are teaching physical skills so a student can participate in vigorous and healthful activity as an adult rather than having spectator events as his sole relationship to the sports world. Our subject matter is tied into the problems created by man's "intelligence" such as air and water pollution; accidents in traffic, in the home, and in industry; the shortage of recreational facilities; the use of tobacco, alcohol, and drugs; obesity, which is a nation-wide health problem; and cardiovascular disease, which strikes down thousands of Americans in the prime of life. Such learning experiences will make for a better educated citizen, and they deserve academic credit as well as does math or history.

Sincerely,
J. Edmund Welch

Conclusion

It would be unwise for physical educators to react to every attack upon our field. This would convey the impression that we are too sensitive and defensive-minded. Usually, the best way to silence critics is to accelerate our efforts

in doing a professional job of teaching, but there are times when an articulate posture is required. In such cases, as a football coach often concludes, the best defense is an aggressive offense. - Originally printed in The Physical Educator, Vol. 26, No. 4, December, 1969, p. 155.

LET'S DO AWAY WITH "P.E."!*

My concept of education is that of a life-long striving to fulfill my potential. Education demands the Faustian spirit of constant dissatisfaction with attained goals and the need to always strive for a better me and better tomorrow. Education is by no means restricted to the classroom. It is often attained through recreation. This includes reading, sewing, various hobbies, and most of all, physical activity.

The body demands continuous attention to be kept in proper working condition. My body, thus, parallels the needs of my mind. Both must possess the Faustian spirit. They are intimately bound together and must not be separated. Unfortunately, physical education has suffered an injustice. It has been accused of dealing only with the body and "checking the brains in the locker room." This discrimination results from ignorance and bad examples within our profession.

During high school I suffered the bad examples (or lack of examples) under various P.E. teachers. Playing games and doing 25 jumping jacks constituted my physical education. Many girls hated the class and avoided activity whenever possible. This is not my idea of a physical education! Just exercising to keep fit is the most boring, unmotivating activity I can imagine. Physical education must involve the mind and spirit as well as the body to be fully effective. It involves the whole person.

Through physical activity I express my personality. I vent feelings of hostility or suppressed energy in a socially acceptable manner. I have also learned through sports to control my emotions. This is physical education.

By playing on the basketball team or a game of singles I learn that I must cooperate with others. Manners, tact, and sportsmanship develop. A new experience - comradeship - emerges. I feel a sense of belonging and worth. The team rejoices in the exuberance of victory and shares the burden of defeat. This is physical education.

Playing tennis well demands hours of training and practice. I sweat and swear (or want to!) The sun beats mercilessly against my skin and in my eyes; yet, I continue to

---

*Reprinted with permission of the publisher from Journal of Health, Physical Education and Recreation, April 1972, pp. 32-33.

practice. I toss the ball once more - success! All the pain and despair vanish with the ace. I jump for joy and serve again. It goes out. I try again. I again learn that I cannot rest on my laurels. I must continually strive, but in that striving there is a satisfaction not to be found anywhere else. This is physical education.

When playing in a tournament my values are tested. Was that ball really out or did I want to see it out? Should I overlook that extra stroke when I just nicked the golf ball? No. Cheating ruins whatever victory that might follow. I learn to be truthful; for only then is the purpose of physical activity achieved.

Having attempted to ice skate, I have discovered how terribly difficult the sport is for me. A new admiration emerges for those who discipline themselves and practice to the point where ice skating is an art to them. I can experience a tremendous joy just watching them perform - I have gained an aesthetic appreciation through my experiences in sports.

Physical education is the most direct form of learning and relating what is learned. Everything I do in sports affects me. I must accept the responsibility for my mistakes as well as successes. I learn discipline, manners, cooperation, and values. Physical education should also include contributions from "academic" fields such as hygiene, anatomy and physiology, and first aid.

As I prepare to enter the teaching field, I must consider what effect I will have on my students. I know I will face those who hate P.E., who do not want to get sweaty and messy, and who are unmotivated toward any type of physical exercise. I hope my enthusiasm for sports will be contagious, and that my example will spur these students to give it a try. I have learned much about the profession this semester, and I have a tendency in my enthusiasm to <u>tell</u> everyone about it. I must restrain myself from telling my students what they should do and rather suggest to them the reasons why physical activity is necessary and enjoyable. I can assist each girl to develop her own potentials, to realize her capabilities, her understanding of herself, and to find a sport which she enjoys and can enjoy the rest of her life.

My main objective will be to help students understand the importance of physical activity for their health, recreation, achievement needs, social life, and personal development. In my endeavors I will be working with the whole student, not just her body. I must protect personalities as well as develop them by working in homogeneous groups. I want to expose my girls to as many different movement experiences as possible in order to whet their appetites for activity and to let them then discover some activity appropriate to their

needs and wants. Physical education will then be the means by which my students gain self-awareness, personal growth, physical fitness, social experiences, aesthetic creativity, values, identity, a sense of belonging, emotional release and expression, and plain enjoyment.

Every student is different from every other in her likes, dislikes, skills, and potentials. No one activity will affect each girl in the same way, or the same girl in the same way. An activity a girl would not dream of doing at age 15 might be the source of endless enjoyment to her at 17. Variety in activity is necessary. Field sports, individual sports, dance, tumbling, swimming, team sports and court sports should be offered. I would also like to see courses in anatomy, health and first aid required as an aid to understanding the body and the mind and their needs, cares and repairs in relation to physical activity.

I see my role as a physical educator first as an example-setter of what I preach. I am a leader as well as an advisor, a protector of personalities and physical injuries, and a person to whom my students can relate.

I wish to teach students through physical activity, not develop the best team at the expense of the students. I want to share what I have experienced and learned through sports, so that my students can also have this experience and thereby enjoy life more. I will give information as well as draw it from my students.

As a physical educator I will be a professional who will endeavor to change the stereotype of the P.E. teacher that now exists. Because my major field of foreign language affords me much respect in the academic world, I feel my teaching of physical education should lend that field more prestige. P.E. teachers are not intellectually lacking.

I confess that I, too, once thought P.E. consisted of jumping-jacks and push-ups, but through my experience in the department I have been converted. I am perhaps more vehement in my convictions of the educational worth of physical activity because I am a convert, and I will strive to physically educate the ignorant and misguided who still suffer under this misconception. Let's do away with P.E. and have <u>more</u> physical education!

TO THOSE WHO WOULD IMPROVE HEALTH*

In every living person change is continuous.

In the presence of another, change is accelerated.

If, in a group, one person has vision and tries intelligently to guide this change toward realizing this vision - he is a teacher.

If his vision is that of happy people possessing strong bodies, unhampered by preventable conditions and if he is willing to discipline himself that he may effectively devote his energy toward making his vision a reality on this earth, he may call himself a health educator.

If he finds simple joy and satisfaction in doing this he will be an inspiring teacher.

A pupil wants to be like the teacher he admires - and before he knows it he is like him. This is often not what the teacher was talking - it is more often what the teacher was living.

The grandchildren of the pupil who has been inspired by a good teacher will be different because of his teaching. Though they may never identify him to sing his praise, their changed life is in truth the immortality of the teacher. Thus in his pupils the teacher is extended even as in himself he finds the likeness of the one who taught him.

Would that I had insight and intelligence to guide change that will lastingly contribute toward the realization of my vision for health.

---

*Reprinted with permission of the copyright owner from Toward An Understanding of Health and Physical Education (Dubuque, Iowa: William C. Brown Company Publishers, 1963), p. 1.

IV. RESPONSE

1. The editor of the Charleston Gazette took a position which disregarded the concept of the unity of the body and mind.

   a. True

   b. False

2. Mr. Welch's rebuttal points out that the subject matter of physical education is closely related to six societal problems. Name three of these.

   _____

   _____

   _____

3. Miss Osterman concludes her first page with a list of things her students will gain from physical education - list three of these:

   _____

   _____

   _____

V. APPLICATION

1. Copy in the space below a sentence from Osterman's second paragraph which describes the line of thinking held by the editor of the Charleston Gazette.

_____

_____

_____

2. Copy a sentence from Steinhaus' monograph which implies something of the immortality of the inspiring teacher.

_____

_____

_____

APPENDIX H

SAMPLE NON-VALUE-LADEN MODULE

I. TITLE

"Learning to Juggle: I. A Study to Determine the Effect of Two Different Distributions of Practice on Learning Efficiency"

by

Clyde G. Knapp and W. Robert Dixon

II. INSTRUCTIONAL OBJECTIVES

After reading the material in this module, the student will be able to:

1. Contrast the terms distributed practice and massed practice.
2. Name the criterion measure used to determine success in learning to juggle.
3. Identify pertinent information regarding the two experimental groups when data are presented in simple tables.

LEARNING TO JUGGLE: I. A STUDY TO DETERMINE THE EFFECT OF TWO DIFFERENT DISTRIBUTIONS OF PRACTICE ON LEARNING EFFICIENCY*

The length of the rest period is an important variable in the study by Ammons and his associates. In that study the primary focus is on long-term retention. The following study concerns original learning. It is designed to help answer two questions: (1) How long should a practice session be? (2) How long a rest should there be between sessions?

The reader will note that a definite relationship exists between the length of the practice sessions and rest periods.

The study has great relevance for physical education. As the authors explain, juggling employs a type of eye and hand coordination essential in many sports. The study also demonstrates how important physical skills can be studied experimentally to discover teaching conditions that make their acquisition easier. Most useful of all, inferences may be made regarding the desirable length and frequency of physical education classes.

Practice is one of the key conditions which must be considered in learning motor skills. This condition may be viewed in the light of at least seven variables whose influence seems to determine the amount of benefit derived from practice: 1) duration of the practice session; 2) length of the rest period between practice sessions; 3) practice method; 4) speed of movement during practice; 5) characteristics of the learner; 6) activity of the learner during the time between practice periods; and 7) complexity of the skill. These and other variables are the subject of much research by those interested in performance improvement.

Since practice does play such a prominent role in the learning of motor skills, it is essential that those charged with teaching these skills have a thorough understanding of the role played by the above mentioned variables during practice. The present study is concerned chiefly with the first two of these, specifically, duration of and the rest between practice periods. How long should a practice session be? How much time should elapse before the session may be repeated

---

*Reprinted with permission of the publisher from Research Quarterly 24:331-36, 1950.

for the greatest efficiency? The earlier research on these questions was planned so as to identify the separate effect of each of the two variables. Thus, an experiment would be designed to measure the effect of different lengths of practice periods by maintaining a constant amount of rest between practice sessions and changing the length of the practice. By reversing the above arrangement the effect of different amounts of interpractice rest was studied.

As research on these two variables has continued it has become increasingly clear that there is a relationship between them. Travis, who used a manual pursuit oscillator to study motor learning, states that "the length of the practice periods and the length of the interpractice rest are fundamentally related."[1] He infers that a longer practice period must be followed by a longer rest period for efficient learning. More recently Nance has found distributed paced practice superior to massed unpaced, distributed unpaced, and massed paced practice. He adds that "it is probable that the superiority of distributed practice is based upon the magnitude of the work-rest ratio and not upon absolute length of trial or rest taken separately."[2] Further evidence of the interrelationship between practice and rest may be found in the study by Spence, Buxton, and Melton.[3] As reported by Nance[4] these investigators used four different distributions of practice to measure learning on the S.A.M. Complex Coordination Test. At the end of the work period all the groups using distributed practice were superior to the continuous group. However, the group using the shortest work-test ratio was not the most superior. Dore and Hilgard also emphasize the relationship when they state, "the optimum distribution of practice obviously lies somewhere between that overcrowding which disrupts practice and that separation which allows a loss of previous gains before practice is resumed."[5]

The present writers were interested in testing the inference made by Travis that longer work periods should be followed by longer rest periods for efficient learning. Would such an arrangement be as efficient as a shorter work-rest distribution? Incidentally, many persons inadvertently adopt the longer work-rest distribution when learning motor skills; they are unwilling or unable to practice regularly and attempt to compensate by engaging in long practice sessions with several days to a week intervening. We wanted to find an experimental situation which would employ a type of coordination closely associated with many sports activities and which would permit easy demonstrations to students. The motor skill of juggling was finally selected as a learning situation which would meet these requirements. Juggling or ball-tossing was a favorite subject of study among early psychological researchers, Swift[6] and Pederson[7] being two who reported using this technique. They were primarily concerned with discovering the nature of the learning curve.

PROCEDURE

Selection of Subjects. The subjects in the experiment were University of Illinois male seniors majoring or minoring in physical education. All of these men were doing student teaching in physical education.

Prior to the establishment of the experimental groups the number of potential subjects was cut down by eliminating those who already possessed some juggling skill. In a pretest, consisting of three trials, each subject tried to juggle three paddle tennis balls. Subjects who made five or more consecutive catches on any one of the three trials were eliminated from the experiment.

By means of random selection, the subjects were placed in two groups of 35 men each. After the composition of the groups had been established, the backgrounds were studied to determine whether the groups were equal in athletic experience and competence. In terms of such criteria as high school letters, college squads, and college varsity letters the groups were well matched.

Practice Preparations and Instructions. An effort was made to orient the subjects in the juggling situation. For example, several demonstrations of juggling were presented. Also, a number of rules and suggestions were given to each subject. These were mimeographed and time was spent in class discussion of the items until each subject felt he fully understood how to proceed. The following is a duplicate of the above mentioned mimeographed material:

A. Rules
   1. Only the whole method is permissible.
      a. You may not practice the hand movements without using balls.
      b. You may not practice the toss and catch using less than three balls.
   2. During a juggle at least one ball must be in the air at all times. If two balls touch a hand simultaneously the count must stop.
   3. Time and distribution of practice sessions, as stipulated for your group, must be followed exactly.

B. Suggestions
   1. Start with two balls in the dominant hand.
   2. Toss and catch the balls with rhythmical movements.
   3. In tossing let the ball leave the hand approximately in front of the chin with the head facing forward.

4. Toss the ball to a height approximately equal to the top of your head.
5. Toss the ball so that it may be caught about six inches to the left, or right, of the sternum line at a height slightly above the belt.
6. Toss the ball to the inside of the ball about to be caught.
7. Watch the balls with a minimum of eye movement.
8. Concentrate on your task.
9. Relax.

Group I was instructed to practice juggling the three balls for five minutes each day, while Group II was to practice for fifteen minutes every second day. Subjects recorded the greatest number of consecutive catches made in each practice schedule until they had succeeded in making 100 consecutive catches. This was the criterion used to measure when the subject had learned to juggle. It will be noted that the above arrangement provides two different ratios of practice and rest: 1) a short practice followed by 24 hours rest; 2) a longer practice followed by a longer rest. This should permit us to ascertain whether or not the longer practice-rest ratio is as conducive to learning as the shorter ratio.

RESULTS

Table 1 presents a comparison of the average time required by the subjects in the two groups to learn to juggle. The mean score for Group 1 was 69.86 minutes and for Group II was 125.80 minutes. The significance of the difference between the two means was computed by using the Student-Fisher *t* test. A *t* value of 3.84 was derived which is significant at the 1 per cent level of confidence.

It will be noted that there are 35 subjects reported for Group I and only 31 subjects for Group II. Actually there were 4 more subjects in Group II when the experiment started, however, 4 gave up after they had spent over 200 minutes in trying to learn. Hence, their scores would not make the difference between the performances of the two groups less significant.

Table 1

COMPARISON OF THE FIVE MINUTE DAILY AND THE FIFTEEN MINUTE EVERY SECOND DAY GROUPS IN TERMS OF THE MEAN NUMBER OF MINUTES REQUIRED TO LEARN TO MAKE 100 CONSECUTIVE CATCHES IN JUGGLING THREE BALLS

Group	N	Mean		Diff.	Diff.	t	P
Five Minute Daily	35	69.86	48.20				
Fifteen Minutes on Alternate days	31	125.80	68.60	55.94	14.98	3.84	.01

Inspection of the individual learning times of the subjects revealed wide differences. The range in Group I was from 19 minutes to 210 minutes while in Group II it was from 40 minutes to 270 minutes. The fastest subject in Group I learned more than eleven times as fast as the slowest subject in that group. Such wide variation in individual performance within these groups would seem to be as noteworthy as the difference between the average group performances.

Discussion of Results. The magnitude of the difference between the average performances of the two groups was startling to the authors. Whereas a substantial amount of individual variation might have been predicted, it is doubtful whether anyone would have forecast such a significant difference between the average group scores. The longer practice-rest ratio was certainly not as conducive to efficient learning as the shorter ratio. But, it should be noted that the subjects using the longer ratio learned to juggle in only 8 plus periods while it took the subjects using the shorter ratio 13 plus periods to reach our criterion. On the basis of these data it seems probable that one can compensate for missed practice sessions by engaging in longer work periods, at least as far as the number of such periods is concerned. Nevertheless, this procedure is relatively inefficient in terms of the amount of actual practice time.

To what shall this difference in learning rate be attributed? If Franklin and Brozek's[8] evidence relating to the ineffectiveness of changing the rest interval is accepted then the length of the work period must be the important factor. However, Travis[9] has equally good evidence which indicates that the length of the rest interval does play an important role in motor learning. Just why the shorter work-rest sessions facilitated more rapid learning remains a moot question. Possible determiners might be found in several of the concepts most frequently used to explain such results. Fatigue may have played a part. Motivation also undoubtedly entered the picture since the subjects' attitudes during the longer work periods were noticed to change. Frequently the men became tense, poorly coordinated, and irritated because of their inability to master the skill. Perhaps, too, the shorter work-rest ratio permitted differential forgetting to operate more effectively.

Attention should be directed to the usefulness of the demonstration experiment technique as a teaching procedure. It may confidently be stated that the men learned much more than just juggling during the course of the experiment. For example, a constructive attitude toward experimentation and research was developed by most of the students. Numerous comments were made to the effect that "maybe there is something to this research business after all." Certainly there was noticeable improvement in the interest and zest with which the students approached the study of teaching methods.

SUMMARY AND CONCLUSIONS

The present study has described a demonstration of the effect of two different practice-rest conditions in learning to juggle. College seniors in physical education were selected as subjects. After eliminating those who were able to make five or more consecutive catches on a pre-test, the men were placed in one of two groups by means of random selection. The groups possessed an equivalent amount of athletic experience, as measured by high school letters and college varsity letters. The subjects in Group I practiced juggling 3 paddle tennis balls for five minutes daily until they were able to make 100 consecutive catches, while Group II practiced the same skill for fifteen minutes every second day.

The data from this demonstration indicate that 1) the five minute daily practice sessions facilitated more rapid learning than the fifteen minute every second day sessions, one minute of practice in Group I proving to be as effective as 1.8 minutes in Group II; 2) fewer practice periods will be needed to learn a motor skill when a longer work-rest distribution is used; 3) wide individual differences may be expected in the learning of motor skills even among subjects who have had wide experiences in related skills.

Footnotes

[1]Travis, Roland. "Length of the Practice Period and Efficiency in Motor Learning," Journal of Experimental Psychology, 24 (March 1939), 339-45.

[2]Nance, R. Dale. "The Effects of Pacing and Distribution on Intercorrelations of Motor Abilities." Unpublished Ph.D. Dissertation, State University of Iowa, June, 1946.

[3]Spence, K. W., C. E. Buxton, and A. W. Melton. "The Effect of Massing and Distribution of Practice on the S.A.M. Complex Coordination Test." Civil Aeronautics Authority, Division of Research, December 1945, No. 53.

[4]Nance, R. Dale, op. cit.

[5]Dore, Leon R. and Ernest R. Hilgard. "Spaced Practice and the Maturation Hypothesis," Journal of Psychology, 4 (October 1937), 245-59.

[6]Swift, Edgar James. Mind in the Making. New York: Charles Scribners Sons, 1909, viii-329.

[7]Pederson, Joseph. "Experiments in Ball-tossing: The Significance of Learning Curves," Journal of Experimental Psychology, 2 (June 1947), 178-224.

[8]Franklin, Joseph C. and Josef Brozek. "The Relation between Distribution of Practice and Learning Efficiency in Psychomotor Performance," Journal of Experimental Psychology, 37, No. 1 (February 1947), 16-24.

[9]Travis, Roland C. "Effect of the Length of the Rest Period on Motor Learning," Journal of Psychology, 3 (January 1937), 189-94.

IV. RESPONSES

1. Practicing once a week for 2 hours would be an example of massed practice.

   a. True

   b. False

2. The criterion or standard used to determine when a subject had learned to juggle was how many consecutive catches?

   a. 25

   b. 50

   c. 75

   d. 100

3. The average (mean) number of minutes required to learn to juggle for the 5 minutes-each-day practice group was

   _____.

4. The subjects using the longer practice-rest ratio (15 min. on alternate days) learned to juggle with fewer practice sessions than the other group required.

   a. True

   b. False

V. APPLICATION

1. Have you ever tried to juggle? _____
   Do you feel that the restriction given in rule 1, part b, regarding not practicing with one or two balls may have effected the rate of learning? _____.

2. How would you plan a similar study to investigate the effect of "part" (using 1 or 2 balls) verses "whole" (using only 3 balls) learning methods?

APPENDIX I

CONTENT LIST

FOR

VALUE-LADEN MODULES

CONTENT LIST FOR VALUE-LADEN MODULES

Module 2

Charles B. Wilkinson, "Helping Your Heart," Bud Wilkinson's Guide to Modern Physical Fitness (Dubuque, Iowa: William C. Brown Company Publishers, 1963), pp.

Arthur S. Steinhaus, "Common Ground," Toward an Understanding of Health and Physical Education (Dubuque, Iowa: William C. Brown Company Publishers, 1963), pp. 3-4.

Module 5

J. Edmund Welch, "A Challenge Answered," Physical Education Reader: History and Foundations (Parsons, West Virginia: McClain Printing Company, 1974), pp. 196-97.

Candy Osterman, "Let's Do Away With P.E.!" Journal of Health, Physical Education and Recreation, April 1972, pp. 32-3.

Arthur H. Steinhaus, "To Those Who Would Improve Health," Toward an Understanding of Health and Physical Education (Dubuque, Iowa: William C. Brown Company Publishers, 1963), p. 1.

Module 7

Arthur H. Steinhaus, "Some Psycho-Social Aspects of Physical Education," Toward an Understanding of Health and Physical Education (Dubuque, Iowa: William C. Brown Company Publishers, 1963), 45-47.

"Metamorphosis of A Marshmallow," The Healthy Life (New York: Time-Life Books Inc., 1966), pp. 58-63.

Module 8

George Leonard, "Running," The Ultimate Athlete (New York: Viking Press, 1975), excerpts from pp. 170-89.

Module 10

Charles A. Bucher, "What's Happening in Education Today?" Journal of Health, Physical Education and Recreation, September 1974, pp. 30-32.

Module 11

Louie Crew, "The Physical Miseducation of a Former Fat Boy," Saturday Review, January 1973, pp. 11-12.

Charles D. Smith, "Help Turn Them On Positively," Journal of Health, Physical Education and Recreation, June 1974, pp. 27-28.

APPENDIX J

CONTENT LIST

FOR

NON-VALUE-LADEN MODULES

CONTENT LIST FOR

NON-VALUE-LADEN MODULES

Module 1 — Peter James Arnold, "Growth and the Development of Motor Skills," Education, Physical Education and Personality Development (New York: Atherton Press, 1968), pp. 30-33.

Module 3 — Robert N. Singer, "Motor Learning as a Function of Age and Sex part III, Early Childhood," Physical Activity Human Growth and Development, edited by G. Lawrence Rarick (New York: Academic Press, 1973), pp. 184-88.

Module 4 — Marshall B. Davidson, "America Learns to Play," Background Readings for Physical Education, ed. by Ann Paterson and Edmond C. Hallberg (New York: Holt, Rhinehart and Winston, 1966), pp. 82-8.

Module 6 — Emmett A. Rice, John L. Hutchinson and Mabel Lee, "Physical Education in the Colonial Period," A Brief History of Physical Education, 5th ed. (New York: The Ronald Press Company, 1969), pp. 140-44.

Module 9 — C. Carson Conrad, "Exercising for Physical Fitness," Physical Fitness Clinic (Washington D.C.: President's Council of Physical Fitness and Sports, 1968).

Module 12 — Clyde G. Knapp and W. Robert Dixon, "Learning to Juggle: I. A Study to Determine the Effect of Two Different Distributions of Practice on Learning Efficiency," Research Quarterly 24:331-36, 1950.

APPENDIX K

APPEAL FOR SUBJECT COOPERATION

APPEAL FOR SUBJECT COOPERATION

I have a position at another college where I am involved with curriculum planning and instructional development in the physical education major program. This curriculum project is an effort to improve teaching and learning in our department.

Arrangements have been made through the department of Health, Physical Education and Recreation at MSU and through your instructor to allow you to participate in a field trial of some materials. We are asking for your cooperation so that the information gained by your participation and comments will be helpful in our further work.

The modules which are included in this project each consist of an objectives section, a content section, a response section, and an application section. In the response section immediate feedback by way of a latent image developer is designed into the modules. Each module is designed for completion in thirty minutes or less and you will receive one module each week for six weeks.

Although your performance is not a course requirement nor a factor in your grade, I believe you will find the reading material interesting and the process enjoyable. I thank you for your full cooperation.

APPENDIX L

INSTRUCTION SHEET FOR PARTICIPATING SUBJECTS

INSTRUCTION SHEET FOR PARTICIPATING SUBJECTS

1. You will be given one instructional module at a time until you have completed the series of six.

2. You will receive one module each Monday. Please take it with you and complete if for collection on Thursday.

3. Modules will be collected each Thursday and the response pages replaced with blank ones in preparation for redistribution.

4. The schedule for distribution and completion of modules is staggered so that fewer copies of each module are needed.

5. Therefore, you will be receiving a module that is different from most, but not all, of your classmates. Don't be concerned about this.

6. Feedback is a part of the process in the completion of each module. If parts of a module call for responses for which feedback regarding appropriate answers is not given, general written feedback will be given by project coordinator on module response sheets to be returned to you at the end of the series. Please place your student number on the RESPONSE page.

7. There will be a short-answer subject matter test over the series of modules collectively after the completion of the sixth module. At this time you will be asked to complete an evaluation form relating to your participation in this project.

8. Your performance is not a factor in your grade for this course; but we will appreciate your full cooperation toward the ultimate goal of improved teaching and learning in physical education.

9. In order for your feedback to be most helpful to us at the end of the series, please:
   (a) Give <u>individual</u> attention to each module - do not discuss with classmates until after entire series and exam are completed.
   (b) Give attention to both content and process in modules.
   (c) Be regular in meeting the scheduled completion-redistribution routine so as not to inconvenience others.

10. Note: Please do not lose your latent image developer and <u>keep the cap on</u> it whenever it is not being used.

Thank you for your involvement in this curriculum research project.

APPENDIX M

PROCEDURES FOR ADMINISTRATION OF WEAR INVENTORY AND PROFESSIONAL OPINION SURVEY

PROCEDURES FOR ADMINISTRATION OF WEAR INVENTORY

AND PROFESSIONAL OPINION SURVEY*

1. The instruments will be given the Wednesday following the collection of the sixth module.

2. The instruments will be administered by a faculty member from HPR department at Michigan State University who has been uninvolved with the subjects and the curriculum modules.

3. Both instruments will be distributed at the same time. Students will be instructed to leave papers face down until further instructions.

4. Students will be assured anonymity and instructed not to record names or student numbers on booklets or response sheets.

5. Students will be instructed to read the instructions on the front of the Wear Inventory (white cover).

6. Students will complete the Wear Inventory according to instructions using the plain IBM sheet for their responses.

7. After completion of Wear Inventory, the white booklet and the completed response sheet will be turned face down.

8. The Professional Commitment Scale (yellow copy) will be completed using the yellow-bordered IBM response sheet. (See appendix H for instructions which will precede the items on PO survey.)

9. Upon completion of the Professional Opinion Survey, the student will take both instruments and both response sheets into an adjacent room.

10. An assistant will collect surveys and IBM sheets into the appropriate (experimental or control) stack by checking the student's verbal report of his student number against the randomly assigned subject lists.

11. When checking the subject lists, the assistant will also note whether the subject completed all six modules. Response sheets from subjects in either group not completing the entire series can be so designated.

*Given to Assistant Department Chairman and graduate assistants who administered the posttests.

BIBLIOGRAPHY

BIBLIOGRAPHY

Adams, R. S. "Two Scales for Measuring Attitude toward Physical Education." Research Quarterly, 34:91-94, 1963.

Allport, Gordon W. "Attitudes" (1935). P. 3-13 in Readings in Attitude Theory and Measurement, edited by Martin Fishbein. New York: John Wiley and Sons, Inc., 1967.

Alpert, Bernard. "The Impact of Written Advocacy on One's Own Opinion Concerning a Conflict Situation: An Experiment with Military, Business and Student Groups." Unpublished Doctoral Dissertation, 1965.

Alsop, William L. "The Effect of the Order of Presentation of an Affective Teaching Model, in an Educational Sport Learning Unit, upon the Modification of a Selected Attitude." Unpublished Doctoral Dissertation, West Virginia University, 1972.

Al-Talib, Nizor M. "Effects of Consonant and Disonant Role Playing with High and Low Justification on Attitude Change Toward Physical Education Courses." Research Quarterly, 41:467-71, December 1970.

Anderson, L. R. and Fishbein, M. "Prediction of Attitude from Number, Strength and Evaluative Aspect of Beliefs about the Attitude Object: A Comparison of Summation and Congruity Theories." Journal of Personal and Social Psychology, 2:437-43, 1965.

Bell, M. et al. "Study of Women's Attitude Toward Physical Education at the University of Michigan." Research Quarterly, 26:15-27, 1955.

Blatnik, Albert Michael. "An Experimental Study in Selected Required College Physical Education Courses to Determine the Effect of a Teaching Model Structured to Produce Positive Attitudes Toward Participation in Lifetime Sports and Conditioning Activities for Physiological and Psychological Well-Being Throughout Life." Unpublished Doctoral Dissertation, West Virginia University, 1968.

Broer, Marian R. "Evaluation of a Basic Skills Curriculum for Women Students of Low Motor Ability at the University of Washington." Research Quarterly, 26:15-27, 1955.

Brown, Joe Albert. "The Effects of Ability Grouping in Physical Education upon Attitude and Achievement." Unpublished Doctoral Dissertation, North Texas University, 1969.

Brown, Venie Edward. "Obesity as a Factor in Self-Concept and Attitude Toward Physical Fitness and Exercise." Unpublished Doctoral Dissertation, The University of Mississippi, 1971.

Brumbach, Wayne B. "Effect of a Special Conditioning Class upon Students' Attitudes toward Physical Education." Research Quarterly 39:211-13, March 1968.

Calabrese, Frank J. and Lana, Robert E. "The Inhibitory and Enhancing Influence of Pretest Commitment." Educational and Psychological Measurement 34:857-69, Winter 1974.

Campbell, Donald E. "Student Attitudes Toward Physical Education." Research Quarterly 39:456-62, October 1968.

Campbell, Donald E. "Wear Attitude Inventory Applied to Junior High School Boys." Research Quarterly 39:888-93, December 1968.

Campbell, Donald T. and Stanley, Julian C. Experimental and Quasi-experimental Designs for Research. Chicago: Rand McNally College Publishing Company, 1973.

Carr, Martha. "The Relationship Between Success in Physical Education and Selected Attitudes Expressed by High School Freshman Girls." Research Quarterly 16:176-91, 1945.

Corbin, C. B. and Chevrette, J. M. "Attitudes of Freshmen Before and After a Lecture-Lab Physical Education Course." Physical Educator 31:138-9, October 1974.

Countiss, Joyce Ruth. "The Effects of Training in the Spectrum of Teaching Styles on the Attitudes and Classroom Behavior of In-service Physical Education Teachers." Unpublished Doctoral Dissertation, Temple University, 1976.

Crase, Darrell. "An Analysis of Professional Interests and Attitudes of Male Physical Education Teachers in the Public Secondary Schools of Ohio." Unpublished Doctoral Dissertation, The Ohio State University, 1966.

Cureton, Edward E. "Measurement Theory." In Encyclopedia of Educational Research, edited by Robert L. Ebel, 4th ed. London: The Macmillan Company, Collier-Macmillan Ltd., 1969.

Davis, Glenna Belle. "The Construction of a Recruitment Film and its Use in Changing Attitudes Toward Physical Education." Unpublished Doctoral Dissertation, University of Arkansas, 1968.

Davis, Leon Glenn. "Changes in the Attitudes of College Freshmen Toward Physical Education Participation." Unpublished Doctoral Dissertation, The University of Alabama, 1964.

Dorey, Edward Aldey. "The Effects of Class Composition on Combative Skills, Physical Fitness and Attitudes of College Students." Unpublished Doctoral Dissertation, University of Minnesota, 1970.

Dressel, Paul L. "Assessing Affective Outcomes." Handbook on Academic Evaluation. San Francisco: Jossey-Bass Publishers, 1976.

Drinkwater, Barbara L. "Development of an Attitude Inventory to Measure the Attitude of High School Girls toward Physical Education as a Career for Women." Research Quarterly 31:575-80, December 1960.

Duthie, James Hunter. "A Comparison of Beliefs and Attitudes Associated with Physical Activity in College Freshmen." Unpublished Doctoral Dissertation, University of Illinois at Urbana-Champaign, 1969.

Dzikielewski, Joseph F. "The Changes in Attitudes and Self-Concepts of Selected Undergraduate Students as a Result of a Teaching Experience in Elementary School Physical Education." Unpublished Doctoral Dissertation, The University of Alabama, 1974.

Edgington, Charles Wendell. "Development of an Attitude Scale to Measure Attitudes of High School Freshman Boys Toward Physical Education." Unpublished Doctoral Dissertation, University of Northern Colorado, 1965.

Eichstaedt, Carl Bruce. "The Effects of Two Specific Adapted Physical Education Programs on Negative Attitudes Toward Physical Education, Physical Fitness, and Motor Skill Development." Unpublished Doctoral Dissertation, The University of New Mexico, 1973.

Erickson, Charles Ralph. "A Comparison of the Effects of Two Methods of Teaching Physical Education on Physical Fitness and Attitude." Unpublished Doctoral Dissertation, North Texas State University, 1969.

Fahner, G. and Hane, M. "Seat Belts: Relations Between Beliefs, Attitudes and Use." Journal of Applied Psychology, 59:472-82, August 1974.

Fishbein, Martin. "Attitude and Prediction of Behavior." P. 477-92 in Readings in Attitude Theory and Measurement, edited by Martin Fishbein. New York: John Wiley and Sons, Inc., 1967.

Fishbein, Martin and Raven, Bertram H. "The AB Scales: An Operational Definition of Belief and Attitude" (1962). P. 183-89 in Readings in Attitude Theory and Measurement, edited by Martin Fishbein. New York: John Wiley and Sons, Inc., 1967.

Fisher, Anita Hart. "Factors Identified with Positive and Negative Attitudes Toward Physical Education." Unpublished Doctoral Dissertation, University of Southern California, 1964.

Fleming, A. William. "The Relationship of Creativity, Attitudes Toward Physical Education, and Physical Education Activity Skill of Physical Education Students and Their Teachers." Unpublished Doctoral Dissertation, University of Wisconsin, 1972.

Floyd, Jerald Dahle. "An Investigation of the Attitudes Toward Physical Education of Intercollegiate Athletes and Non-Intercollegiate Athletes at Selected State Universities of Illinois." Unpublished Doctoral Dissertation, University of Utah, 1971.

Gibson, Melvin Emery. "The Relationship Between Selected Background Variables and Attitudes Toward Physical Education of Public School Principals in the State of Mississippi." Unpublished Doctoral Dissertation, University of Southern Mississippi, 1972.

Goldberger, Michael Stephen. "The Effects of Affective and Cognitive Training Programs on the In-Class Behavior of Physical Education Student Teachers." Unpublished Doctoral Dissertation, University of Pittsburgh, 1970.

Gravett, Bob Lee. "A Comparison of the Effects of Four Selected Programs of Physical Education with Regard to Physical Fitness and Attitude Toward Physical Education." Unpublished Doctoral Dissertation, North Texas State University, 1969.

Gustafson, John Alvin. "The Effects of Programmed Instruction and Modular Open-Block Scheduling on Student Attitude Toward Physical Education." Unpublished Doctoral Dissertation, University of Utah, 1972.

Hegarty, W. H. "Changes in Students' Attitudes as a Result of Participating in a Simulated Game." Journal of Educational Psychology, 67:136-40, February 1975.

Hellison, Donald Raymond. "The Effect of Physical Conditioning on Affective Attitudes Toward the Self, the Body, and Physical Fitness." Unpublished Doctoral Dissertation, The Ohio State University, 1969.

Herman, William Lane. "Relationship Between Selected Characteristics and Teaching Attitude of Male Senior Physical Education Majors and Minors at Colorado State College." Unpublished Doctoral Dissertation, Colorado State College, 1964.

Hill, Carl Allen. "Factors Related to the Attitudes of Ninth Grade Boys in Arkansas Toward Physical Education." Unpublished Doctoral Dissertation, University of Arkansas, 1971.

Hill, Eugene L. "A Survey of Physical Education Attitudes in Sixty-three Secondary Schools in Illinois." Unpublished Doctoral Dissertation, University of Northern Colorado, 1941.

Hosen, Ron. "The Impact of Education on Religious and Political Attitudes." Improving College and University Teaching Yearbook 1975. Edited by Delmer M. Goode. Corvallis, Oregon: Oregon State University Press, 1975.

Howell, David L. "The Effects of a Student Manual on the Attitudes of High School Students Toward Environment Protection." Unpublished Doctoral Dissertation, The Ohio State University, 1973.

Howell, D. L. "Teaching for Change in Attitude: Introduction to Environmental Protection." Agricultural Education Magazine, 47:111, November 1974.

Isenberger, Wilma E. "Self-Attitudes of Women Physical Education Majors as Related to Measures of Interest and Success." Unpublished Doctoral Dissertation, The University of Iowa, 1957.

Jackson, Philip W. "The Difference Teachers Make." How Teachers Make a Difference. Washington D. C.: U. S. Government Printing Office, 1971.

Jaeger, Eloise Magdalene. "An Investigation of a Projective Test in Determining Attitudes of Prospective Teachers of Physical Education." Unpublished Doctoral Dissertation, The University of Iowa, 1952.

Johnson, Robert Marion. "Attitude Toward Physical Education." Unpublished Doctoral Dissertation, Brigham Young University, 1971.

Johnson, Dewayne J. and Leider, Fred E. "Comparison of Students' Attitude on Performance-based and Traditional Teaching Methods." ERIC Resources in Education, January 1975.

Kahnert, John H. "The Relationship of Selected Components of Physical Fitness to Physical Fitness Knowledge and Attitude or Opinion Expressed Toward Physical Fitness of Male College Students." Unpublished Doctoral Dissertation, University of Maryland, 1969.

Kelman, Herbert C. "Compliance, Identification and Internalization: Three Processes of Attitude Change." In Readings in Attitude Theory and Measurement, edited by Martin Fishbein. New York: John Wiley and Sons, Inc., 1967.

Kenyon, Gerald S. "Certain Psychosocial and Cultural Characteristics Unique to Prospective Teachers of Physical Education." Research Quarterly, 36 (1):105, 1968.

Kenyon, G. S. "Six Scales for Assessing Attitude Toward Physical Activity." Research Quarterly, 39:566-74, 1968.

Keogh, Jack. "An Analysis of General Attitudes Toward Physical Education." Research Quarterly, 33:239-44, May 1962.

Kidd, Thomas R. "An Evaluation of a Foundations of Physical Activity Course." Research Quarterly, 42:35-41, March 1971.

Knapp, Clyde G. and Dixon, W. Robert. "Learning to Juggle: I. A Study to Determine the Effect of Two Different Distributions of Practice on Learning Efficiency." Research Quarterly, 24:331-36, 1950.

Kneer, Marian E. "The Adaptation of Wear's Physical Education Attitude Inventory for Use with High School Girls." Unpublished Master's Thesis, Illinois State University, Normal, 1956.

Korman, A. K. "Disguised Measure of Civil Rights Attitudes." Journal of Applied Psychology, 59:239-40, April 1974.

Krathwohl, David R.; Bloom, Benjamin S.; and Masia, Bertram B. Taxonomy of Educational Objectives. Handbook II: Affective Domain. New York: David McKay Co., Inc., 1964.

Labarbera, Constance Selma. "The Development and Evaluation of a Life Style Physical Education Program for High School Girls and Its Effect on Physical Fitness, Friendship Status, and Selected Attitudes Toward Physical Education." Unpublished Doctoral Dissertation, Boston University School of Education, 1974.

Lee, Blaine Nelson and Merrill, David M. Writing Complete Affective Objectives: A Short Course. Belmont, California: Wadsworth Publishing Company, 1972.

Likert, Rensis. "The Method of Constructing an Attitude Scale" (1928). In Readings in Attitude Theory and Measurement, edited by Martin Fishbein. New York: John Wiley and Sons, Inc., 1967.

Locke, Lawrence F. "Teacher Education for Physical Educators: Inventing the Wheel and other New Practices." ERIC Resources in Education, October 1974.

Lockhart, Barbara Day. "Personality Factors of University Women in Relation to Their Attitudes Toward Physical Education and Physical Activity." Unpublished Doctoral Dissertation, Brigham Young University, 1971.

McCullough, J. Lee and Ostrom, Thomas M. "Repetition of Highly Similar Messages and Attitude Change." Journal of Applied Psychology, 59:395-7, June 1974.

Marburger, Donna Rae. "The Effect of Two Methods of Teaching Beginning Tennis on the Development of Tennis Skill and Knowledge, and on Attitude Toward Physical Education." Unpublished Doctoral Dissertation, University of Northern Colorado, 1965.

Meyne, Robert Herman. "A Situation Response Attitude Scale for College Men Physical Education Majors." Unpublished Doctoral Dissertation, Indiana University, 1964.

Motley, Paul Clay. "Personality and Attitude Change of College Freshmen Due to Participation in a Required Adapted Physical Education Program." Unpublished Doctoral Dissertation, University of Arkansas, 1973.

Nemson, Edward. "Specific Annoyances in Relation to Student Attitude in Physical Education Classes." Research Quarterly, 20:336, October 1949.

Neulinger, John. "An Issue of Attitude Change." JOHPER, 47:28-29, March 1976.

Nie, Norman H.; Hull, C. Hadlai; Jenkins, Jean H.; Steinbrenner, Karin; and Brent, Dale H. SPSS: Statistical Package for the Social Sciences. 2nd ed. New York: McGraw-Hill Inc., 1970.

Nix, George C. "An Essential Approach to Teaching Values." In Improving College and University Teaching Yearbook 1975, edited by Delmer M. Goode. Corvallis, Oregon: Oregon State University Press, 1975.

Norman, Edward Henry. "The Comparison of Three Approaches to Teaching College Physical Education in the Shaping of Attitudes Toward Physical Activity." Unpublished Doctoral Dissertation, University of Southern California, 1969.

Orbaker, Eugene Floyd. "The Effects of Verbal Reinforcement on Attitude Toward Physical Education." Unpublished Doctoral Dissertation, West Virginia University, 1972.

Organ, John Moses, Jr. "Students' Attitudes Toward Required Physical Education in the Liberal Arts Program at Howard University." Unpublished Doctoral Dissertation. The George Washington University, 1976.

Osterman, Candy. "Let's Do Away with P. E." Journal of Health, Physical Education and Recreation, April 1972.

Pickering, Robert S. "An Experimental Study of the Effects of Inquiry Experiences on the Attitudes and Competencies of Prospective Elementary Teachers in the Area of Science." Unpublished Doctoral Dissertation, Michigan State University, 1970.

Price, William J. "A Study of the Effects of the Student Teaching Experience and the Student Teaching Assignment upon Educational Attitudes of Secondary Student Teachers at Michigan State University." Unpublished Doctoral Dissertation, Michigan State University, 1970.

Professional Preparation in Physical Education and Coaching. Washington D. C.: AAHPER publications, 1974.

Prothero, Jon C. and Ehlers, Walter H. "Social Work Students' Attitude and Knowledge Changes Following Study of Programmed Materials." American Journal of Mental Deficiency, 79:83-6, July 1974.

Remmers, Hermann H. "Measuring Attitudes Toward Vocations." Purdue University, Studies for Higher Education, 25:77-83, December 1934.

Remmers, Hermann H. Introduction to Opinion and Attitude Measurement. New York: Harper and Brothers, 1954.

Richardson, C. E. "Thurstone Scale for Measuring Attitudes of College Students Toward Physical Fitness and Exercise." Research Quarterly, 31:638-43, 1960.

Roundy, E. S. "Problems of and Competencies Needed by Men Physical Education Teachers at Secondary Level." Research Quarterly, 38:274-82, 1967.

Sepasi, Houssein. "An Assessment of Attitudes Toward Physical Activity of Michigan State University Undergraduate Students." Unpublished Doctoral Dissertation, Michigan State University, 1975.

Servis, Margery and Frost, Reuben B. "Qualities Related to Success in Women's Physical Education Professional Preparation Program." Research Quarterly, 38:283-290, May 1967.

Sheehan, Thomas J. and Alsop, William. "Educational Sport." JOHPER, 43 (5):41-45, May 1972.

Sickmiller, Ralph. "An Evaluation of Education 101 A Students Regarding Their Confidence Level for Teaching Attitudes Toward Teaching, and Desire to Teach Elementary School." Unpublished Doctoral Dissertation, Michigan State University, 1973.

Simon, J. A. and Smoll, F. L. "Instrument for Assessing Children's Attitudes Toward Physical Activity." Research Quarterly, 45:407-15, December 1974.

Singer, Robert N. and Dick, Walter. Teaching Physical Education: A Systems Approach. Boston: Houghton Mifflin, Co., 1974.

Smoll, Frank L.; Schutz, Robert W.; and Keeney, Joan K. "Relationships Among Children's Attitudes, Involvement and Proficiency in Physical Activities." Research Quarterly, 47 (4):797-803, December 1976.

Sonstroem, Robert S. "Attitude Testing Examining Certain Psychological Correlates of Physical Activity." Research Quarterly, 45:93-103, May 1974.

Steig, Peggy et al. "Teacher Competencies for the Physical Educator." The Michigan Journal for Health, Physical Education and Recreation, p. 10-11, June 1978.

Steinhaus, Arthur H. "To Those Who Would Improve Health." Toward an Understanding of Health and Physical Education. Dubuque, Iowa: Wm. C. Brown Company, Publishers, 1963.

"Teacher Preparation and Assignment." Guidelines for Physical Education in Michigan Schools. Lansing: State Board of Education, 1976.

Teaff, Walter Douglass. "A Comparison of Two Methods of Teaching Beginning Badminton to College Men and on Attitude Toward Physical Education." Unpublished Doctoral Dissertation, East Texas State University, 1970.

Thompson, John C. Physical Education for the 1970's. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971.

Thornburg, Mary Lou. "Measurement of Professional Attitude Held by Women Physical Education Major Students in Selected Institutions." Unpublished Doctoral Dissertation, University of Iowa, 1967.

Thurstone, L. L. "Attitudes Can be Measured" (1928). P. 77-89 in Attitude Theory and Measurement, edited by Martin Fishbein. New York: John Wiley and Sons, Inc., 1967.

Tieman, Philip and Beck, Robert J. "Self-Prescribed Fitness: Attitude Change Through Innovation in a Basic Program." Minneapolis: Proceedings NCPEAM 1970, 1971.

Tolson, Homer and Chevrette, John M. "Changes in Attitudes Toward Physical Activity as a Result of Individualized Exercise Prescription." The Journal of Psychology, 87:203-7, 1974.

Vincent, Marilyn F. "Attitudes of College Women Toward Physical Education and Their Relationship to Success in Physical Education." Research Quarterly, 38:126-31, March 1967.

Vincent, Marilyn F. "Prediction of Success in Physical Education Activities from Attitude, Strength and Efficiency Measurements." Research Quarterly, 38:502-6, October 1967.

Wear, Carlos L. "The Evaluation of Attitude Toward Physical Education as an Activity Course." Research Quarterly, 22:114-26, 1951.

Wear, Carlos L. "Construction of Equivalent Forms of an Attitude Scale." Research Quarterly, 26:113-9, 1955.

Welch, J. Edmund. "A Challenge Answered." Physical Education Reader: History and Foundations. Parsons, West Virginia: McClain Printing Company, 1974.

Wessel, Janet A. and Nelson, Richard C. "Relationship Between Strength and Attitudes Toward Physical Education Activity Among College Women." Research Quarterly, 35:562-69, December 1964.

Yingling, Harriet Elizabeth. "The Effect of Teaching of Concepts upon Attitudes and General Motor Performance of Ninth Grade Girls in Physical Education." Unpublished Doctoral Dissertation, New York University, 1967.

Zaichkowski, L. B. "Attitudinal Differences in Two Types of Physical Education Programs." Research Quarterly, 46:364-70, 1975.

Ziatz, Daniel Henry. "The Effect of a Public Relations Program on Parental Attitudes Toward Physical Education." Unpublished Doctoral Dissertation, University of Utah, 1973.