

LONG TERM EFFECTS OF A LECTURE-LABORATORY
(CONCEPTUAL) APPROACH TO PHYSICAL EDUCATION

by

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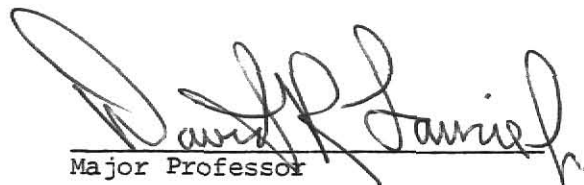
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I would like to dedicate this thesis to three very special people in my life. First, to my Mom and Dad, who without their understanding, support, and love I would never have been able to begin this project. And finally to Alison, a very special young lady whose constant reassurance, caring, and thoughtfulness enabled it to be completed.

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CHAPTER I

THE PROBLEM

For years physical education was a requirement for all students at most universities. Historically, the requirement was often associated with physical training to prepare for military service. During the '60's when general requirements of all kinds were questioned, so were physical education requirements. Many times it was difficult to justify the requirements as they had little relationship to future fitness or activity patterns. In 1969 (1) Brunner asked adults that have been out of school up to 30 years the question "Did the college physical education program you participated in help you to formulate habits of exercise that carried over to adult life?" Sixty-three percent gave a no answer. Included in the survey were college faculty members, resident physicians, and alumni businessmen.

Today's traditional physical education programs are simply not meeting the changing needs and demands of our students. When questioned about this the typical answer has become, "But that's the way it has always been done." The style of life the typical American adult now lives is biologically and psychologically unsuited to the natural physical endowments of the human organism as it has evolved and adapted over the years. Man must now function under severe, artificial, and stressful conditions. A change in teaching methods and practices is warranted if physical education is to survive as a educational avenue in this new era of accountability.

One method recently developed to make physical education more relevant to students was the teaching of Concepts related to fitness and physical activity. As an alternative to the traditional methods of physical education, the Concepts program makes use of a Lecture-Laboratory approach to learning. The programs' objectives are to assist a person in developing his or her abilities to make intelligent decisions concerning health, physical fitness, and recreational pursuits, as well as his or her abilities to recognize the role of exercise and physical activity for a lifetime (2, 6, 7). In this type of program students spend less time in physical activity and more in "reflection, discussion, evaluation, and conceptualization." The students not only listen (lectures and discussions) to see how their bodies react to exercise, but they can feel and experience participation in the laboratory settings.

A primary example of this Lecture-Laboratory approach is the Concepts in Physical Education Course taught at Kansas State University, Manhattan. This program which has received national recognition, was originated in 1972 and served as a model for over 200 similar programs throughout the United States. It's ultimate aim, then, is to have students become fully functioning healthy individuals for a lifetime with enjoyment, meaning, and purpose in life (2, 6, 7, 19).

Statement of the Problem

It has been documented that weaknesses exist in traditional physical education programs (2, 11). Also acknowledged is the sound theoretical basis of the lecture-laboratory course. However, the effectiveness of these programs has not been well documented.

The value of any program to the people that it is designed for can only be determined through serious and precise evaluation. Without evaluation it is pure conjecture to make any statements as to the effectiveness of the program. It has been stated (19) that the ultimate test of the success through this Concepts approach would be, "Do people do it for a lifetime?" Up until now it has been claimed that these types of programs haven't been in operation long enough for a true evaluation. Therefore, only short term evaluations of the program's effectiveness have been conducted (3, 4, 10). Since the Concepts in Physical Education program at KSU has been in effect for nine years, it is now time for a critical and thorough evaluation of the KSU Concepts program to determine if it truly is meeting it's ultimate aim of lifetime health and fitness.

Purpose of the Study

Since the creation of the Concepts program at Kansas State University, evaluation of the program's effectiveness in meeting its ultimate aim and objectives has been limited to short term evaluations. The purpose of this investigation was to evaluate the long term effectiveness of the lecture-laboratory physical education (Concepts) class as taught at Kansas State University in regards to the development of lifetime health and fitness practices in young men and women. More specifically, the purpose of this study was to determine if any differences could be found among groups of KSU graduates having had the Concepts course vs. those not taking the course. Specifically, graduates who took the Concepts course in 1972 were compared to those who did not, but who

graduated in the same year. Similar comparisons were made for graduates taking the Concepts course in 1974. Further, male graduates were compared to female graduates for each of the two years. Comparisons were made for the following dependent variables: attitude towards fitness and activity, confidence in making fitness decisions, activity level, benefits of activity, and knowledge of fitness and activity.

Limitations

Certain factors that may diminish the validity of the study were present and were not able to be controlled.

1. The results were dependent upon the return of the test instruments. It may have been the more favorable the subject was to fitness and activity, the more likely he or she would return the instrument.

2. The questionnaire format of the study may obtain answers which were not the true feelings and practices of the subjects.

3. It was assumed that all indexes were valid in examining their particular content areas.

4. The Concepts course is in a state of constant change in an attempt to improve and update its instructional content.

Delimitations

The following describe the boundaries of the study.

1. The subjects for the study were Kansas State University students which graduated in a four year period from either the 1974-75 or the 1978-79 classes.

2. The Concepts Status group took the Concepts course in either

the 1972-73 or the 1974-75 school years.

3. The Quiz-out status group passed a proficiency exam and took a fitness test, which exempted them from further participation in the Concepts course.

4. The Non-Concepts Status group (having been a transfer student to KSU) were exempt totally from ever having to take the Concepts course.

Definitions of Terms

These operational definitions related to the studies serve to clarify terms.

Activity Index

A section of the questionnaire designed to determine the average (self assessed) amount of time each subject spent in activity, given in minutes per week.

Attitude Index

A section of the questionnaire designed to determine a subject's attitude toward fitness and physical activity.

Benefits Index

A section of the questionnaire designed to determine how a subject perceives his own participation in activity actually benefits him.

Concepts in Physical Education

A required all-University lecture-laboratory course at Kansas State University which presents the most up-to-date scientific evidence in determining the how, what, and why of physical fitness and activity.

Confidence Index

A section of the questionnaire designed to determine the self-

assessed ability of the subject in establishing personal fitness programs.

Concepts Evaluation Index

A section of the questionnaire designed to determine the Concepts-Status group's opinions in regards to the quality of the Concepts program at KSU.

Knowledge Index

A section of the questionnaire designed to determine a subject's knowledge of basic concepts of fitness and activity.

CHAPTER II

REVIEW OF THE LITERATURE

Contained in this section are summaries of studies conducted in the following areas related to this investigation: (1) the status of fitness in America, (2) the status of physical education, (3) the status of Concepts-Foundations type classes in the United States, and (4) evaluations of the Concepts in Physical Education course at Kansas State University.

Status of Fitness in America

This is a nation plagued by "Hypokinetic Diseases." These diseases which are related to or caused by the lack of physical activity include: heart disease (the leading cause of death in the U.S.), obesity, low back pain, circulatory problems, high blood pressure, and poor posture (5). In this sedentary society of leisure and free time, the average worker has approximately 800 more hours of leisure time per year (13). This "easy life" world has allowed heart disease to account for 55% of all deaths in the U.S. per year (5). As many as 45% of all adults are obese and low back pain (in most cases a result of weak muscles) is the leading medical complaint today (5).

It has become clear that those who are active have fewer of the types of illnesses described above than those who are inactive. In fact, the death rate in active people is one half that of inactive people. People of today, are simply not as active as they were in the past. No longer do people have to spend 18 hours at hard labor to

earn a living. The push button society has caused the need for people to "work at" maintaining their fitness.

An encouraging point has been that over 52% of the adult population have been participating in some form of regular phsyscial activity (13). The other side shows that 45% chose not to participate in any activity at all and that of those 52% that are active, 28% are doing less now than they had in the past (13). In commenting on these figures, Casey Conrad, Executive Director of the President's Council on Physical Fitness and Sports (23) stated that "Most people just can't seem to manage their own lives." Still further he implied that all one can do is hammer away through the media and get the facts to them. This hopefully would show them the way to healthier and better lifestyles. Dr. Samuel Fox, a Georgetown University cardiologist (23) insisted that he understands the reason for the drops in active participation. He claims that there are people out there listening to their jogging friends about the great joys of running. So, they go out and try it, incorrectly of course. Then they get aches and pains, sore knees or shin splints and say, "the hell with this."

This claim of improper understanding of method and technique does seem to have some merit. It appears that the public as a whole does understand the fundamentals of fitness, but there seems to be a distinct lack of prescriptive and evaluative techniques being employed. For example, the public seems to know that strenuous types of exercise increase the efficiency of the heart and circulatory system, but 57% of them also think that playing baseball will accomplish this task. The inability of the average adult to make judicious decisions concerning

their own exercise problems leaves them vulnerable to quackery and quick dollar gimmick exercises which are prevalent in our society. This inability of the American adult in decision making is perhaps one of the main reasons why the American male reaches his greatest fitness level at age 17 and the female at age 10 to 12, when both theoretically have their greatest potential at age 25 to 30 (5).

Even though the outlook is somewhat bleak, there have been some positive trends in recent years. The one with perhaps the greatest impact was the trend of "Corporate America" to recognize the importance of "fit" employees. In fact, there are over 400 major corporations with full time fitness instructors. To further stimulate interest the Xerox Corporation built a new 3.5 million dollar fitness facility at its training center for its employees' fitness. The government was also getting in on the act, by placing fitness experts in various branches of departments in order to increase the longevity of its employees. There were 312 cardiovascular retirements in the Transportation department in 1977 alone, which totalled some two million dollars in disability. Lost time, lost workers, re-training costs, all added up to lost productivity. That is what business was trying to stop with its fitness push.

Most Americans that exercise regularly either walk, jog, swim, calisthenics, or bike. Among sports, those of a lifetime nature are most popular including: bowling, golf, basketball, and especially tennis.

Some 90% of all Americans (13) believe that regular exercise is important to good health and fitness. But more than half of the same 90% had some misconception of activity practice. It seems that the

logical first step in developing a "fitter" nation would be the "proper" education in fitness concepts for the society.

Status of Physical Education

Recent studies have attempted to determine trends in higher level physical education programs throughout the United States. These studies basically looked at the availability of physical education, the requirement of, and the trend in course offerings.

In 1974, Hodges (14) conducted a study on the status and structure of physical education in public two year colleges in the Mid West. He found that 74% of the schools surveyed offered some type of basic program. Forty one percent offered some type of individual study, which included the availability of a proficiency examination. Hodges concluded that body conditioning was receiving very little support in the profession and earmarked it as one of the areas of emphasis for future physical educators.

Yarnell's (34) 1971 study showed 81% of two year colleges required physical education and that over 71% gave credit. He concluded that most junior colleges felt physical education was an important part of their educational process.

Thomas (33) conducted a study on junior colleges in the Southern District of the AAHPER in 1973. He found that 98% offered physical education classes and that 89% gave credit for them. Only five percent of the public school institutions offered some type of proficiency examination. An important point uncovered was that when physical education was left as a non-requirement, less than 10% of the student

body enrolled. It was also found that of the courses the students were taking, lifetime sports and fitness activities were number one and two on the list.

Oxendine (22) in his continuing study of general physical education programs at four year colleges and universities seemed to place most emphasis in his latest report (1977) on the continuing decline of "required" physical education. Only 57% of all four year institutions required physical education in 1977, while 83% required it in 1961, 87% required it in 1969, and 74% in 1972. The 17% drop from 1972 to 1977 was very significant (because, as will be shown later, those who opt not to take physical education, are those that would probably benefit most from it).

Where physical education was required, the one year pattern was predominate (slightly more than half) while the two year requirement (prevalent five to ten years ago) was on the decline (only used in about one third of the schools). In these required programs the number of students being excused from participation has dropped dramatically (to only about three percent). Perhaps, the ability of new programs (like Concepts) was enabling educators to adapt to different individual's needs thereby eliminating prior valid reasons for exclusion.

Competency testing seemed to be on the rise with about one-third of the institutions offering this opportunity to "opt out" of the physical education requirement. However, only about one-fourth of all the students actually take advantage (if it is one) of this option.

Whether required or elective, approximately 94% of all Universities and Colleges offer some type of physical education for the general

student. This was comparable to Oxendine's findings in 1972. And the great majority of those classes were available on a coeducational basis. It was reported that 89% of all courses were available to both men and women. The most predominantly segregated courses were (for men) basketball, wrestling, football, weight training, and gymnastics, and (for women) basketball, field hockey, gymnastics, and lacrosse. Only five to six percent of the schools felt interest levels were inhibited by coeducational classes.

Trends in course offerings had shifted dramatically. Categories that showed the greatest gains were individual sports, outdoor skills, basic movement, and fitness activities. Team sport continued to show a decline in popularity as originally shown in Oxendine's 68 and 72 studies. Consequently, course offerings were currently evenly balanced across the board, including aquatics, basic movement and fitness, dance and rhythms, individual sports, and team activities. The single most popular sport was found to be tennis, followed closely by (in order): hand/racquet ball, dance, golf, bowling, fitness, and aquatics. The most successful new courses were various forms of fitness activities (including jogging, aerobics, etc.).

Status of Concepts-Foundation Type
Classes in United States

For years the physical educator has dealt with only the physical element in their educational practices. The kinesthetic "tactical" awareness contained in the performance of many skills and activities has served as the primary instructional method utilized by physical educators throughout the country. Even though this may be the most

powerful tool in a physical educator's arsenal, it should not be his only one. It has only been recent (past 20 years) that other important elements of teaching have become apparent in the profession. These additional elements, or means to education, include: knowledge, attitude, and behavior.

Sheehan (27) found that "the physical educator had a hard time viewing cognition as an integral part of the physical education process." Olson (21) furthered Sheehan's view when he pointed out the idea that physical education had a definite stake in the cognitive area. He claimed, "that educational emphasis should be on personal meaning in relation to knowledge, individualization, and education for meaning and relevance."

Kahnert (17) in his study on attitude and physical activity found that knowledge related positively to attitudes expressed toward physical fitness. In 1972 (26) Reeves researched the attitudes of freshmen students toward physical education at the beginning and end of their first physical education college class. He found a positive change in attitude significant at the .01 level. Terry, Erickson, and Johnson (32) stated that, "students who understand why physical activity is important are more likely to be physically active all their lives." They claimed that by changing students' attitudes that changed behavior would result, thereby creating a healthier, happier individual.

Hall (12) although not condemning the changing attitude philosophy, felt that it was not enough. She claimed that there was little evidence shown to support the idea that behavior comes in line with attitude, rather that most studies have shown that people tend to bring their

attitudes in line with their behavior. She felt that physical education should place more emphasis on behavior change. Her reasoning was that students who experienced the benefits of physical activity firsthand were more likely to be physically active than those who only "knew" about the benefits. Sienna and Ameer (28) supported this "behavior modification" approach. They created a class which required students to make long-term commitments to change in behavior for a healthier lifestyle. They then monitored the students' behavior throughout the commitment to determine the amount of progress that was made. They claimed the class environment provided students with the opportunity, motivation, and guidance to work out those poor health habits and replace them with positive behaviors for a lifetime.

The Lecture-Laboratory (Concepts) class of Physical Education attempted to incorporate all four elements (knowledge, attitude, behavior, and physical activity) into its instructional system (5, 2, 19). The lecture setting is where the cognitive knowledge is presented as well as the reasoning behind the how, what, and why of exercise and physical activity. The laboratory setting is where emphasis is placed on activity and behavior remodeling (both on a short and long term basis). The course is totally individualized and coeducational with lifetime health and fitness practices as its final goal.

Corbin (4) investigated the lecture-laboratory class at Texas A & M in 1969 and found that 70% of the students rated the course favorably after the first semester and 95% rated it favorable after the second semester. In 1974, Corbin and Cheverette (4) studied changes in attitude toward physical education as a result of a lecture-laboratory

course. Post testing was used utilizing the Spear (Form A) instrument. They found that the subjects scored higher on two attitude subscales (general and mental-emotional). They recommended further research in this area. Fanning (8) in his study of five years on the effects of a Concepts approach to physical education found that the value of physical education was significantly improved through the Concepts program. Also the subjects showed greater participation in recreative sports from their Concepts experience.

Evaluation of the Concepts in Physical Education Course at Kansas State

There have been several evaluations performed on Concepts in Physical Education (261-101) at Kansas State University. Holder (15) investigated the attitudes of freshmen men and women toward physical activity in her 1973 unpublished master's thesis. She found that those students who attempted and passed the proficiency exam (quiz-out) had a poorer attitude toward physical activity, were not interested in participating in intramurals, had not participated in interscholastic sports competition, did not enjoy physical education and were from average to below average in physical ability. She concluded that those who passed the proficiency exam were those who disliked physical activity and could benefit most from the Concepts course.

In 1974, the Department of Health, Physical Education and Recreation at Kansas State University performed a self-study titled "Proposal Concerning Required Physical Education" which revealed the following. Students rated the Concepts program as follows on a 1 to 5 scale (1 = poor, 2 = fair, 3 = average, 4 = good, and 5 = very good).

The Lecture	...	...	...	3.6
The Fitness Test	...	...	...	3.8
Gym Sessions	..	...	...	3.6
Lecture Instructor	...	...	...	4.1
Gym Instructor	.	...	...	4.1
Concepts vs. Sports Classes				3.6
Usefulness	.	...	...	3.9
Total				<u>3.8</u>

The study showed the high degree of credibility the programs possess with the students. It was also pointed out that the program was evaluated at the end of each semester.

Gibson's (10) 1975 master's thesis evaluated the lecture-laboratory course in physical education at Kansas State. He found that the attitudes of the students who had successfully completed the course were more positive toward participation in lifetime sports and formal exercise programs than were students who were not exposed to the Concepts course. The Concepts course had developed a much more positive attitude among females in their confidence to evaluate their own physical fitness needs and to prescribe a program to meet their needs. Based on student ratings, the course improved from the first to the second year of operation.

Jordan's (16) 1977 unpublished master's thesis investigated the opinions of the graduate students who either taught the laboratory section of the class or completed the graduate course 261-750 Teaching Concepts in Physical Education. She found that over half (54%) of the graduates students' initial reactions to the Concepts program were enthusiastically in favor of it while an additional 38% believe the program had some merit. Sixty-nine percent of the subjects would choose the lecture-laboratory approach to Physical Education, if given the

choice. Seventy-eight percent believed their experience with Concepts was beneficial to them in their present positions.

Laurie (19) performed a 1978 study which looked at the short term effects of the lecture-laboratory (Concepts) class at KSU in relationship to a subjects' knowledge, attitude, and reported behavior in physical fitness. He found that college students have a misplaced confidence in their ability to assess their own fitness and plan exercise programs. However, these people were the same people who reported themselves to be active (after a lecture-laboratory class) and who gave good ratings to the course. As a whole both the knowledge and the confidence of individuals increased after their contact with the lecture-laboratory course. Finally, there was no difference in the knowledge of subjects in the three different (high, medium, low) confidence groups. In general the evaluation of the course and self-reported exercise behavior of the students was extremely good upon their completion of the course.

Summary

This review showed the importance of physical fitness and presented one of the the sounder theoretical approaches to physical education recently created. Patterns of the societies' relationship to fitness and physical education were reviewed. Basic structure and philosophy of Concept type programs were covered in order to show the sound framework of the program's basis. Finally, evaluations of the Concept programs was shown to be very sparse and when performed at all, only on a short term basis. It has been suggested that further investigations need to be made in order to truly determine whether the claimed effectiveness of the program is true.

CHAPTER III

PROCEDURES

A description of the procedures used in this study is given in this chapter. These procedures were approved by the Committee for the Rights and Welfare of Human Subjects, Department of Health, Physical Education, Recreation, and Dance, Kansas State University. This chapter is organized in four basic sections: (1) selection of the subjects, (2) development of the instruments, (3) collection of the data, and (4) analysis of the data.

Selection of Subjects

Subjects for this study were 300 former Kansas State University students who graduated in a four year period. Subjects were placed into appropriate cell blocks based upon their distinguishing characteristics for the study. These characteristics (or independent variables) were: Concepts Status (participated in the Concepts in Physical Education course at KSU, quizzed out of the Concepts in Physical Education course, or never participated in the Concepts course); year of Concepts Experience * (the student took the Concepts experience in either the 1972-73 or 1974-75 school years); and Sex (the student was either male

*Being that the Concepts in Physical Education class is a Freshmen course, those students participating in the course graduated four years later in 1976-77 and 1978-79. Therefore, even though the control group never incurred a Concepts experience in the treatment years, they still graduated in the same class years as their Concepts and Quiz-out counterparts.

or female). The specific distributions of the 300 subjects is shown in Table 1.

Table 1
Number and Grouping of Students
Selected for Test Subjects

YEAR	CONCEPTS		QUIZ-OUTS		NON-CONCEPTS	
	<u>male</u>	<u>female</u>	<u>male</u>	<u>female</u>	<u>male</u>	<u>female</u>
72-73	25	25	25	25	25	25
74-75	25	25	25	25	25	25

The 25 subjects contained in each cell were randomly selected from the total possible population number in each group. A table of random numbers was used and the total number of students in each group determined the highest number applicable for the selection process. A page of five random digit numbers was utilized in this verified selection process (31). A breakdown of specific population totals from which the random selection process took place is shown in Table 2.

Table 2
Total Population in Numbers
for Each Group

YEAR	CONCEPTS		QUIZ-OUT		NON-CONCEPTS	
	<u>male</u>	<u>female</u>	<u>male</u>	<u>female</u>	<u>male</u>	<u>female</u>
72-73	403	479	176	159	1,655	1,014
74-75	701	749	106	119	1,126	660

The determination of status relative to the Concepts in Physical Education course was made at the Concepts Program Offices (for the Concepts and Quiz-out subjects) and at the Office of Records and Admissions (for the Non-Concepts subjects). A Concepts subject was one who completed the entire seven week course, receiving a total point grade of 70 or better (on a 100 point maximum scale). A Quiz-out subject was one who took the quiz-out examination, given during the first week of class, and received a score of 70 points or better (also, on a 100 point scale). This excused those that passed from further participation in the Concepts Class. Finally, the Non-Concepts subject was determined by reviewing the computer with no participation in the Concepts in Physical Education course whatsoever.

Development of Instruments

Attitude Index

The Attitude Index (Appendix A) was designed to determine one's attitudes in relationship to fitness and physical activity. The instrument was originally developed by Dr. Charles B. Corbin for use in Concepts at the collegiate level. Several small adaptations were made to adjust questions making them more relevant to the young adult population being surveyed. Through prior usage, the reliability of this index was determined to be a consistently high coefficient of .94. Therefore reliability of this instrument was considered to be very strong. The index made use of a Likert scale containing the following five responses: Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree. A sample of an item from this index follows:

11. Most jobs provide all the exercise and activity a person needs for fitness.

No single answer was considered correct, though positive answers towards activity, (agree or disagree, depending on the wording of the item), were considered to be desirable.

Scores were determined by giving five points to the most desirable answer. Then the scoring continued in a descending fashion, four points for the second most desirable answer, three for the next, two for the next, and one point for the least desirable answer. For questions 1, 2, 7, 10, 11, 13, and 16 the most desirable was Strongly Disagree. For questions 3, 4, 5, 6, 8, 9, 12, 14, 15, and 17 it was Strongly Agree. The highest possible total score on the index was 115 points.

Confidence Index

The Confidence Index (Appendix B) consisted of six items designed to determine the level of confidence possessed by the subjects, concerning their ability to plan specific aspects of fitness and activity program. Again, a Likert scale was used containing the following five responses: Very Confident, Quite Confident, Inbetween, Quite Unsure, and Not Confident. A sample item of this index was:

2. I can determine the fitness areas in which I am most in need of improvement.

No single answer was considered correct, though high degrees of confidence were given higher number scores, than low confidence responses. This index, originally developed by Brad Gibson, was used for a short term analysis of the Concepts in Physical Education Program at KSU in 1975 (10). The reliability of the index was established to be .82.

Activities Index

Activities Index (Appendix C) was made up of over 30 specific activities listed in alphabetic order with spaces at the end for additions. The subjects were instructed to choose the activities they participated in plus the amount of time spent doing them. A sample of this index was:

<u>ACTIVITY</u>	<u>FREQUENCY</u> DURING THE <u>WEEK</u>							<u>AVERAGE</u> DURATION OF <u>PARTICIPATION</u>		<u>BASIS</u> (S) SEASONAL (Y) YEAR ROUND	
	1	2	3	4	5	6	7		min.	S	Y
Backpacking											

This index was adapted from the Perrier Study on Fitness in America conducted by Harris and Associates (13).

The intent of this index was to attain a specific number value which would enable a person to be labeled as either a high active person or a low active person. In order to accomplish this a formula was created to gather all the time data into one quantified numerical value. The formula for this numerical determination is given below.

Formula for the Determination of Activity Numerical Values

$$\begin{array}{l}
 \text{Freq. per week} \times \text{Ave. duration} \quad \text{(yearly activities)} \\
 \text{(plus) + } \frac{\text{Freq. per week} \times \text{Ave. duration} \times 1/3}{\text{(seasonal activity)}} \\
 \text{(equals) = Total Activity value}
 \end{array}$$

The higher the numerical value, the more active a person was in their typical week.

The Benefits Index

The Benefits Index (Appendix D) was designed to determine the benefits each subject felt they specifically received when they

participated in physical activities. Again a Likert scale was used containing the following three responses: Definitely, to Some Degree, and Not Noticeably. A sample item was:

11. Have a better self image.

Again no single answer was considered correct, though high degrees of benefit were considered desirable. This index was also developed by Harris and Associates for their Fitness Study (13).

The Knowledge Index

The Knowledge Index (Appendix E) was designed by the researcher in an effort to determine an individual's knowledge about fitness and activity. Due to the survey nature of the study, it was necessary to develop a short term instrument which would cover the key concepts of this area. The result of this effort was a 10 item index which utilizes a multiple choice format. The specific components to which each question addressed itself is shown in Table 3.

Table 3

Concepts of Fitness and Activity to
Which Knowledge Index Questions
Were Addressed

Question 1	-	Disease of Sedentary Man
Question 2	-	Strength Fitness
Question 3	-	Health - Related Fitness
Question 4	-	Skill - Related Fitness
Question 5	-	Threshold of Training
Question 6	-	Diet and Exercise
Question 7	-	Jogging Craze
Question 8	-	Warm Up/Cool Down
Question 9	-	Flexibility Fitness
Question 10	-	Factors Related to Training

The Evaluation Index

The Evaluation Index included items designed to evaluate the Concepts Program (Appendix F). It consisted of seven items designed to determine the subjects' feelings in regards to the Concepts in Physical Education course. Again a Likert scale was used containing the following five responses: Definitely True, More True than False, Inbetween, More False than True, Definitely False. A sample of this index was:

5.a. Compared with other courses I took at KSU, the Concepts course rated "well above average" in personal value.

Again no single answer was considered correct on these items, but the items chosen in a positive sense (True and More True than False) were considered to be of higher value than the others. Reliability for this index was determined to be .88 (10).

Only subjects of the Concepts-Status group received the Evaluation Index as part of their questionnaire. The Non-Concepts Status group received a general status sheet (Appendix G) to verify that they had never taken the Concepts in Physical Education course and to find out why. The Quiz-out Status group did not receive either the Evaluation Index or the Status sheet in their questionnaire.

The total questionnaire (including all six sections) was evaluated by a group of experts in the field. They included: Dr. David Laurie, Concepts Coordinator at Kansas State; Dr. Michael Robinson, Professor of Statistics at Kansas State; Dr. Donald Hoyt, Head of Educational Resources at Kansas State; and Dr. Charles B. Corbin, founder of the Concepts program at Kansas State and author of several books and articles on the same subject. The judgement of these experts was used to

enhance the content quality and validity of the instruments. Their suggestions and criticisms added to the final form of the questionnaire but final contents were the decision and responsibility of the researcher.

Collection of the Data

Testing instruments, along with a cover letter explaining the purpose of the study (Appendix H), plus a self-addressed stamped return envelope were sent to the 300 subjects selected for the study. Current addresses were obtained through a review of the mailing lists at the Kansas State University Alumni Association. Each return envelope was affixed with a number on the front so that the researcher could determine who had returned them. The master copy matching numbers with names was kept in the personal files of the researcher and was seen only by him. The subjects had the option of returning the information requested or the testing instruments unanswered. Once the instruments were returned, the envelope with the identifying number was separated from the test instrument to insure confidentiality.

One-hundred-fifty follow-up post cards (Appendix I) were sent to subjects who had not returned the information within four weeks of the first mailing date. One-hundred-fifty surveys were returned within the first four weeks of the first mailing date. And an additional 57 surveys were received within the following three weeks. A breakdown of return per cell block is shown in Table 4.

Table 4

Number of Subjects Participating
in Study per Cell Block

YEAR	CONCEPTS		QUIZ-OUTS		NON-CONCEPTS	
	male	female	male	female	male	female
72-73	14	16	12	19	12	16
74-75	20	18	11	12	13	13

Each cell block should contain 25 subjects if 100 percent return would have been realized. However, as with most surveys this was not the case, but a respectable 59% was attained (68% for the Concepts treated group, 54% for the quiz-out group, and 54% for the Non-Concepts group).

Analysis of Data

All analyses were done using the computer facilities at KSU. The a-priori level of significance for rejecting statistical hypothesis was set at the .10 level. The .10 level was chosen over the "traditional" .05 level for several reasons. First, it has been found in the past that the nature of the problem under investigation should be the dictating factor in determining what significance level should be used. Due to the exploratory nature of this study on an educational program (which attempted to capitalize on the most effective tools being used by physical educators) a higher level of significance (.10) seemed more appropriate than the traditional .05. Secondly, because of the above rationale it became apparent that Type II errors (retaining a false null hypothesis) must be minimized. In order to reduce these Type II errors (i.e., the possibility of not finding out something that is there) the chance of having a Type I error would have to increase.

Since the two types of errors, Type II and Type I (rejecting a true null hypothesis), are inversely related to each other, it is impossible to minimize both errors at the same time (that is, without increasing the sample size). Therefore, accepting a Type I error would mean that the study recognized that what occurred as having been caused by one of the treatments, when in fact chance might have been the cause.

In order to further justify the level of significance, the purpose of the study at hand must be reviewed. It was the purpose of this study to attempt to evaluate a new and innovative program, and to find out its strong points, in order to determine the lifetime benefits it might be producing in its participants. It is the author's belief that the chance of including some small benefit as being a cause of the Concepts program which in reality it isn't, is far less damaging than the chance of rejecting a true and potentially important future benefit caused by the Concepts program.

It should be further noted, however, that even though the significance level was set at the .10 level, that the actual level of significance associated with each research finding was stated. This was done in order for each reader to determine whether (for his purposes) the finding has any practical significance.

A Hotelling-Lawley Trace Multivariate Anova was first used because of the multiple dependent variables which were present. In addition, univariate ANOVA, Duncan's Multiple Range Test, and the Chi-Square analysis procedures were used. Finally, Descriptive Statistics were used to analyze individual item responses in various indexes of the questionnaire.

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to determine if and to what extent the Concepts in Physical Education program at Kansas State University influenced the lifetime health and fitness practices of the young men and women who completed the course. This information was acquired from the analysis of the Survey instrument completed by all subjects. This chapter contains the results and discussion of those data.

Multivariate Analysis

1972-73 Year Analysis

This analysis was conducted to determine if any overall effect had occurred when looking at the dependent variables (attitude, knowledge, benefits, confidence, and activity) collectively as one and not as specific individual items or indexes. Utilizing the Hotelling-Lawley Trace a significant multivariate main effect for treatment (status) was found $F(10, 156) = 1.84, p < .058$. In other words, there was a significant difference between the Concepts, Quiz-out and Non-Concepts treated groups on the combined dependent measures. A closer look at the univariate statistics indicate that the most important contributors to this overall treatment effect were the subjects' activity practices, attitude towards activity and knowledge about fitness. It is clear that this combined effect illustrated in the MANOVA shows the positive outcomes to be incurred by the Concepts treated group when compared to the Quiz-out and Non-Concepts (control) treated groups.

Another significant multivariate main effect difference was found between sexes $F(5, 79) = 2.99, p < .016$. A closer look at the univariate statistics indicate that the most important contributors to this overall effect was the subjects' confidence and activity practices.

There was no main effect interaction between status and sex. This indicated that whatever difference found between status groups were in no way related to differences found between sexes. In other words the status differences were a direct result of differences in treatment, rather than some type of offshoot effect caused by differences in sexes.

1974-75 Year Analysis

This analysis was conducted to determine if any overall effect had occurred (in this program year) when once again viewing the dependent variables collectively as one, rather than specific indexes. Again a Hotelling-Lawley Trace was used to determine a significant multivariate main effect difference for treatment $F(10, 152) = 2.80, p < .003$. This showed there was a significant difference between the Concepts, Quiz-out, and Non-Concepts treated groups on the combined dependent measures. A closer inspection of the univariate statistics showed knowledge combined with attitude and activity practice as the main contributors to this overall effect. Viewed, independently, in the univariate analysis, attitude and activity practice proved to be non-significant at the .10 level, however, once combined with knowledge they form a strongly significant multivariate effect in favor of the Concepts treated group.

No significant main effect difference was found between sexes. However, there was a significant status x sex interaction $F(10, 152) = 2.27, p < .017$. This indicated that some of that large difference between

treatment (status) groups might well be explained by differences in sex rather than differences in treatment. However, upon closer inspection of the univariate statistics, only benefit and attitude (very weak at that) were shown to be significantly different when looking at sex. This implies that although there were sex differences in these two variables that resulted in a sex x status interaction, alone they were not enough to have been completely responsible for the strong status differences. Therefore, the differences in status resulted from direct differences in treatment.

Based upon the evidence found in this 1974-75 multivariate analysis and the 1972-73 analysis results, it is clear that through participation in the Concepts in Physical Education course, one will increase his/her knowledge, attitude, and activity practice (behavior) during their lifetime.

Univariate Analysis - 1972-73

Activity Index

A significant main effect for treatment (status) was found in this area $F(2, 88) = 3.58, p < .032$. There also was a significant sex difference $F(1, 88) = 4.09, p < .046$. No significant interaction was present. Because there were significant main effect differences found in treatment and sex ANOVA's (Duncan's Multiple Range Test) were conducted. Differences in treatment means are reported in Table 5. The significant activity level difference between treatment groups clearly shows that the Concepts group was more active than either the Quiz-out or the Non-Concepts groups. Possible explanation for the Concepts group advantage

Table 5

Mean Differences Between Treatment Groups
on Activity Index for 1972-73

<u>QUIZ-OUTS</u>	<u>NON-CONCEPTS</u>	<u>CONCEPTS</u>
193.19	293.82	404.73

*Means not underscored are statistically
different at the .10 level.

is the completion of the Concepts course where continued emphasis is placed on the importance of problem solving. Through various teaching methods used, this continued emphasis enables students to use this tool for problem solving in solving fitness and activity problems.

The sex differences for activity are presented in Table 6.

Table 6

Mean Differences Between Sexes
on Activity Index for 1972-73

<u>FEMALES</u>	<u>MALES</u>
239.06	372.79

*Means not underscored are statistically
different at the .10 level.

This difference was to be expected. 1972 occurred just prior to the big push for women's equality in sports and activity. The fitness boom was just beginning to get started and it still wasn't appropriate behavior for a female to enter a fitness or weight room center. It is important to note here that this sex difference is across the board and is in no way related to status.

Knowledge Index

There was a significant main effect for treatment (status) in this area $F(2, 88) = 3.76, p < .027$. There were no other significant main effects and no significant interactions at the .10 level. An ANOVA was conducted with the differences in means reported in Table 7.

Table 7
Mean Differences Between Treatment Groups
on Knowledge Index for 1972-73

NON-CONCEPTS	QUIZ-OUTS	CONCEPTS
5.89	<u>6.81</u>	<u>6.90</u>

*Means not underscored are statistically different at .10 level.

Both the Quiz-out and Concepts treated groups were significantly more knowledgeable about fitness than Non-Concepts subjects. It has already been documented (3) that the Quiz-out group, are generally a superior intellectual group and that they study and force learn (memorize) the facts in order to be exempt from further participation in the Concepts course. In the case of the Concepts treated group their knowledge gains were a direct result from their participation in the Concepts program. In other words, the Concepts course was the contributing factor in the higher levels of knowledge possessed by the Concepts group.

Attitude Index

There was one significant effect in this area, a main effect difference for treatment (status) $F(2, 88) = 2.52, p < .087$. No other main effects or interactions were found. The significant main effect for

the treated groups can be observed in Table 8.

Table 8

Mean Differences Between Treatment Groups
on Attitude Index for 1972-73

<u>QUIZ-OUTS</u>	<u>NON-CONCEPTS</u>	<u>CONCEPTS</u>
66.48	66.75	69.40

*Means not underscored are statistically
different at .10 levels.

Table 9 clearly shows the Concepts treated group with a significantly more positive attitude towards fitness and activity. This better attitude aligns itself with one of the major objectives of the Concepts course. And that is by improving peoples' attitudes through presenting them with the facts as well as many different avenues one has at their disposal to achieve fitness.

Benefits Index

A significant main effect difference was found for the treatment (status) groups in this area $F(2, 88) = 2.49, p < .089$. The differences can be viewed in Table 9. No other differences were found.

Table 9

Mean Differences Between Treatment Groups
on Benefits Index for 1972-73

<u>CONCEPTS</u>	<u>NON-CONCEPTS</u>	<u>QUIZ-OUTS</u>
26.60	29.11	31.55

*Means not underscored are statistically
different at .10 level.

It has already been shown that Quiz-out subjects have a superior knowledge level as well as an inferior activity level. Based upon these premises, it would be possible for the Quiz-out group to reason that what little activity they do perform to be of extreme benefit to them. While the Concepts group (also knowledgeable) is highly active and does not assess as much benefit to their activities. This is due probably to several reasons with the first being that the Concepts treated group do not always participate in activities only for the "benefits" received from them. Many times the word fun enters into their reasons for participating. Secondly, the Concepts group participates in a variety of activities with differing amounts of time placed on each vehicle would also tend to diminish their concentration on any specific benefit received. At any rate self-assessed benefits are of little importance when compared to actual behavior practices.

Confidence Index

There was one significant main effect difference found for sex $F(1, 88) = 13.30, p < .0005$. No other significant differences or interactions were discovered. An ANOVA was conducted. The results are shown in Table 10.

Table 10

Mean Differences Between Sexes on
Confidence Index for 1972-73

MALES	FEMALES
12.21	14.94

*Means not underscored are statistically different at .10 level.

Table 10 clearly shows that across the board in 1972-73 females were more confident in making fitness decisions than were their male counterparts. This was of no surprise. Past studies (2, 19) have shown that those people low in activity, low in knowledge, and low in attitude are the same people high in confidence. It seems these people possess a misplaced sense of security in their limited abilities. Even though in this case the females possessed the same knowledge and attitude, they were still lacking in the most important of the three, activity practice. With more activity or experience in the behavioral end of fitness and activity the females will acquire a more realistic view of fitness and activity. The reasoning behind this is that with more experience will come a greater working knowledge to the possible dangers and problems in making sound fitness decisions.

Univariate Analysis - 1974-75

Activity Index

There were no significant main effects found nor were there any significant interactions found in this area. However, as already shown in the Multivariate analysis, the activity level does contribute to an overall Multivariate status effect $F(2, 86) = 1.21, p < .30$. So, although not significant by itself, activity practice (when combined with knowledge and attitude) is shown strongly in favor of the Concepts treated group. Differences are reported in Table 11.

Knowledge Index

There was a significant main effect difference found for status $F(2, 86) = 12.66, p < .0001$ as well as a significant interaction

Table 11

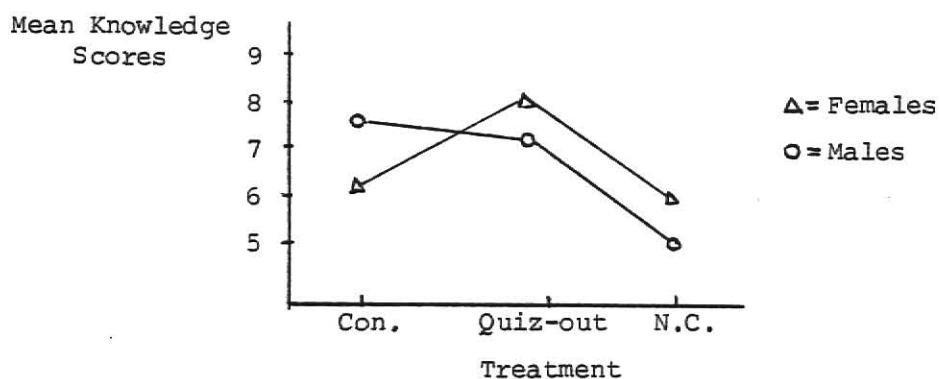
Mean Differences Between Treatment Groups
on Activity Index for 1974-75

NON-CONCEPTS	QUIZ-OUTS	CONCEPTS
251.00	275.00	433.18

*Means not underscored are statistically
different at .10 level.

between sex and status $F(2, 86) = 6.86, p < .002$. In addressing the interaction (to insure it doesn't influence the differences found between treatment groups), individual sex differences across treatment (status) groups will be looked at first. This interaction is graphically presented in Figure 1.

Figure 1



Interaction Between Sex x Treatment Means
on Knowledge Index for 1974-75

The interaction is being caused by the flip-flopping effect of the females from the Concepts to the Quiz-out groups. In the Quiz-out group the females possessed a higher degree of knowledge than the males. This

is probably due to the need of female quiz-outs to memorize and learn the facts of fitness where many males possibly relied on their sports background to help them through the exam. Whereas, in the Concepts group quite possibly this worked the other way. The males with their higher degrees of background were able to assimilate the large quantities of knowledge being fed to them in a very short time. While the females with a lesser background simply could not assimilate as quickly. This might make a case for the Concepts course to be extended in time, possibly from a seven weeks class to a full semester, in order that everyone can have an equal opportunity to "soak up" the necessary information to make future decisions for a lifetime. Other possible reasons for the lower knowledge scores for Concepts females might include the first time in a coeducational setting for physical education which may have lessened their effort at times. Also the "student-directed" atmosphere of the Concepts course may have caused some difficulty. It seems that in the past, female physical education classes were very strict, disciplined, and teacher directed. This newly encountered freedom may have caused a need for adjustments on the females' part which may have adversely affected their knowledge gains.

Whatever the reasons behind the female Concepts lower knowledge scores, Figure 1 clearly shows that this does not affect the differences in scores attained by the treatment groups. These differences are presented in Table 12. Once again (as in 72-73) the results show the Concepts and Quiz-out groups possessing significantly more knowledge than the Non-Concepts group. This also follows the argument that the Quiz-out group attains their "factual" knowledge through forced

Table 12

Mean Differences Between Treatment Groups
on Knowledge Index for 1974-75

NON-CONCEPTS	CONCEPTS	QUIZ-OUTS
5.62	6.92	7.61

*Means not underscored are statistically
different at .10 level.

memorization, while the Concepts group attains their "working" knowledge (as shown through scores or other indexes) through their participation in the Concepts course.

Attitude Index

Only one significant main effect difference was discovered in this area. An ANOVA was used to find a significant sex difference $F(1, 86) = 2.82$, $p < .097$. The results of this difference can be viewed in Table 13.

Table 13

Mean Differences Between Sexes on
Attitude Index for 1974-75

MALES	FEMALES
65.66	67.88

*Means not underscored are statistically
different at .10 level.

These numbers quite possibly represent the beginning impact of women breaking into the active world. With the inception of new programs

(like Concepts) and new ideas of fitness for everyone, women were beginning to enter weight rooms and fitness centers all across the country. And although they still did not possess as much self-assessed benefit about fitness, their attitude had made a dramatic jump during those two years (from 72-74) of the lifetime activity boom. Likewise men, during this time, may have suffered a little ego lessening effect: meaning that one of their last completely dominated aspects of society had been overtaken. The females had started to become full partners not only at work, but at recreating as well. With all the new female participation, much of the limelight for the males had been removed and with it quite possibly a little of their positive attitude towards fitness and activity.

It was shown in the Multivariate analysis for 74-75 that the attitude level of the treatment groups served as a strong contributor (along with knowledge and activity practice) in the overall Multivariate Status Effect. This attitude effect $F(2, 86) = 0.94$, $p < .39$ significantly supports this overall effect in favor of the Concepts group. Differences are presented in Table 14.

Table 14

Mean Differences Between Treatment Groups
on Attitude Index for 1974-75

NON-CONCEPTS	QUIZ-OUTS	CONCEPTS
65.73	66.26	67.76

*Means not underscored are statistically different at .10 level.

So, although not significant independently the attitude levels for status do contribute to the positive effect for the Concepts program overall.

Benefits Index

There was a significant main effect difference for sexes found in this area. This difference was determined through use of ANOVA (Duncan's Multiple Range Test) to be $F(1, 86) = 5.21, p < .025$. These differences are presented in Table 15.

Table 15

Mean Differences Between Sexes on
Benefits Index for 1974-75

FEMALES	MALES
28.04	32.73

*Means not underscored are statistically different at .10 level.

This indicates that across the board (i.e., having nothing to do with treatment) males feel they are receiving more benefit from their active participation than females do. Females although high in attitude and knowledge still haven't yet developed the necessary behavioral background and experience in fitness problem solving that it takes to truly determine the benefits of participation. Now, on the other hand, males with their assorted sports and fitness backgrounds possibly have an edge in determining the benefits resulting from various forms of physical activity.

Confidence Index

There were no significant main effect differences found, nor were there any significant interactions at the .10 level.

Descriptive Analysis

Activity Practices

(See Table 16) It is clearly evident that the Concepts treated group is much more active than either the Quiz-out or Non-Concept groups.

Table 16

Number and Percentages of High Active,
Moderately Active and Non-Active
Subjects in each Treatment Group

	1972			1974		
	CON	Q.O.	NON.C.	CON	Q.O.	NON.C.
High Active						
(f)	14	7	8	18	8	6
(%)	46.7	22.6	28.6	47.4	34.8	23.1
Mod. Active						
(f)	5	6	8	6	4	9
(%)	16.7	19.4	28.6	15.8	17.4	34.6
Non Active						
(f)	11	18	12	14	11	11
(%)	36.7	58.1	42.9	36.8	47.8	42.3

*NOTE: Cutoff points for Determination of Activity levels were acquired from the National Perrier study on Fitness (13).

*NOTE: 0 to 150 Minutes of Activity a week = Non Active
151 to 305 Minutes of Activity a week = Mod. Active
306 and More Minutes of Activity a week = High Active

Looking specifically at the percentage of Concepts people that are highly active (46.7% from 72 and 47.4% from 74) and comparing that with the Quiz-out (22.6% from 72 and 34.8% from 74) and Non-Concepts (28.6% from 72 and 23.1% from 74) groups in those same areas. It shows the Concepts group more active by almost a two to one margin. In the Chi-square analysis, the tabulated value of χ^2 for $\alpha = .10$ and d.f. = 2 is 4.605. Since the calculated $\chi^2 = 10.033$, the null hypothesis of $H_0: p_1 = p_2 = p_3 = 1/3$ (i.e., all three treatment groups possess 1/3 of highly active people) must be rejected. In other words, the research hypothesis that one group (Concepts) possesses more than 1/3 must be accepted. Another important item to be looked into is the better showing of the Non-Concepts group when compared to the Quiz-out group on being active. Just because one knows a lot about fitness does not necessarily cause one to be more active. To change behavior, several areas must be reached, which the Concepts program attempts to accomplish.

Knowledge

(See Table 17) This particular area shows the general superiority of the Quiz-out subjects in knowing "the facts" followed closely by the Concepts group with the Non-Concepts group bringing up the rear. Again this was to be expected, with the Quiz-out group a little more intellectual to start with and having the ability to memorize facts. While the Concepts subjects were just a step behind in knowledge and seemingly (based upon the other indexes) were making a greater use of it, by putting the knowledge into practice. Specific items of interest are questions seven, nineteen and five. In questions seven and nineteen the Concepts group scored substantially higher than the Non-Concepts

Table 17

Percentage of Correct Responses
on Knowledge Items for Treatment Groups

ITEM	1972			1974		
	CON	Q.O.	NON.C.	CON	Q.O.	NON.C.
1	53.3	71.0	57.1	57.9	69.6	50.0
2	43.3	25.8	21.4	23.7	30.4	26.9
3	93.3	100.0	92.9	97.4	100.0	88.5
4	56.7	51.6	57.1	65.8	73.9	38.5
5	56.7	51.6	39.3	65.8	73.9	42.3
6	86.7	87.1	82.1	76.3	87.0	80.8
7	70.0	77.4	53.6	73.7	95.7	30.8
8	100.0	100.0	92.9	97.4	100.0	100.0
9	43.3	32.3	14.3	44.7	43.5	30.8
10	86.7	83.9	78.6	89.5	87.0	73.1

group illustrating the inability of the general public to determine what types of exercise they are or need to participate in. While in question five the public's inability to know how much exercise they need to make minimal fitness gains become apparent. These two inability, prescription and evaluation, have already been shown as extreme problems in the literature. Problems which the Concepts program has been shown to compensate.

Attitude towards Fitness

(See Table 18) The table presents the favorable responses which include both strongly positive and positive answers based upon the wording of the statements. This caused the actual percentages to appear much

closer between groups than they actually were. The Concepts group chose the strongly positive choice more of the time than the Non-Concepts group which chose the positive answer for their choice more often. Keeping this in mind, the Table still shows the Concepts group with a slight overall advantage in percentage selection.

Table 18

Percentage of Favorable Responses
on Attitude Items for Treatment Groups

ITEM	1972			1974		
	CON	Q.O.	NON.C.	CON	Q.O.	NON.C.
1	100.0	93.5	100.0	100.0	100.0	100.0
2	90.0	83.8	92.9	86.8	86.9	92.3
3	90.0	71.0	67.9	86.8	82.6	73.1
4	40.0	12.3	32.2	39.5	34.8	26.9
5	100.0	100.0	96.4	97.4	86.9	88.5
6	53.3	58.1	71.4	63.2	60.8	61.5
7	83.3	77.4	57.1	65.8	69.5	69.2
8	80.1	67.7	89.3	78.9	82.6	80.8
9	80.0	93.6	75.0	55.3	56.5	53.9
10	71.0	77.5	75.0	84.2	91.3	69.2
11	100.0	90.0	93.9	97.4	100.0	92.4
12	63.3	71.0	92.4	7.9	65.2	57.7
13	93.3	92.0	85.7	94.7	100.0	80.7
14	100.0	92.5	100.0	94.7	91.3	96.2
15	96.6	87.1	92.9	89.5	82.6	88.2
16	86.7	83.8	92.8	84.2	100.0	84.6
17	53.3	35.5	17.9	36.9	30.4	23.1

Special attention should be given to items three, thirteen and seventeen. In all three the Concepts group had a much higher percentage selection. This higher selection in number three shows that the Concepts group does not only participate in activity only for fun, but also to an extent uses it as a "catharsis" release, which would seem to contradict recent literature. In item thirteen the Concepts group shows that as an active person, the chances are good that the selection of recreation will also be active, rather than sedentary type activities. Finally, it was shown in item seventeen that 53% of the 72 Concepts group did not feel that physical education was getting enough emphasis, while only 36.9% of the 1974 Concepts group felt the same way. Perhaps this lessening feeling over the two year period reflects the fitness boom era's effect on even the Concepts people.

Benefit from Activity

(See Table 19) While viewing the table of items as a whole, the advantage once again must go to the Concepts treated group as being superior. Only the definitely favorable responses were recorded in the table. Specific items of interest are numbers four, five, nine, and fourteen, all of which are interrelated. All of the items entail some type of stress management foundation. The idea of coping, feeling rested, and relaxing, all add up to one's ability to handle stress.

Table 19

Percentage of Definitely Favorable Responses
on Benefit Items for Treatment Groups

ITEM	1972			1974		
	CON	Q.O.	NON.C.	CON	Q.O.	NON.C.
1	100.0	83.9	78.9	81.6	95.7	80.8
2	63.3	64.5	67.9	71.1	69.6	69.2
3	63.3	51.6	64.3	76.3	52.2	42.3
4	73.3	48.4	71.4	73.7	47.8	34.6
5	73.3	51.6	60.7	73.7	52.2	34.6
6	56.7	38.7	57.1	42.1	52.2	46.2
7	66.7	61.3	71.4	63.2	65.2	53.8
8	40.0	29.0	32.1	36.8	21.7	23.1
9	50.0	32.3	39.3	44.7	30.4	34.6
10	40.0	32.3	39.3	39.5	34.8	26.9
11	60.0	58.1	50.0	50.0	65.2	53.8
12	56.7	38.7	35.7	44.7	47.8	46.2
13	50.0	32.3	28.6	36.8	30.4	38.5
14	43.3	29.0	32.1	47.4	21.7	26.9
15	40.0	19.4	35.7	31.6	17.4	23.1
16	44.0	12.9	35.7	31.6	13.0	15.4
17	26.7	6.5	25.0	31.6	13.0	19.2

In other words, Concepts people truly feel that active participation is a safeguard against today's stressful world.

Confidence

(See Table 20) Observation of the Table shows the Concepts group to possess a slightly more favorable confidence level which is misleading. By looking at group means (under the univariate analysis) the Non-Concept, Quiz-out and Concept groups are significantly the same at the .10 level.

In other words, there are no differences between the groups in confidence levels.

Table 20

Percentage of Favorable Responses
on Confidence Items for Treatment Groups

ITEM	1972			1974		
	CON	Q.O.	NON.C.	CON	Q.O.	NON.C.
1	96.7	80.6	89.3	92.1	95.7	84.6
2	80.0	64.5	67.8	76.4	78.2	73.1
3	60.0	45.1	67.9	68.4	65.2	53.8
4	53.3	29.0	35.7	57.9	39.1	30.8
5	73.4	74.2	64.3	65.8	83.9	65.2
6	50.0	51.7	42.8	60.6	47.8	57.7

Concepts Evaluation

An ANOVA was conducted to determine if any overall effect had occurred when looking at the total Concepts Evaluation Index. It should be noted that only the Concepts treated group completed this index, therefore no overall effect for treatment could be conducted. There were no overall main effect differences for year or sex, although by viewing Tables 21 and 22 one could see the overall trends even though they were not significant at the .10 level. Table 21 shows the trend of a more positive evaluation of the Concepts program with the increase in years. This was to be expected, with the inception of any new program (which Concepts was in 1972) there are problems with administration and function which must be ironed out. These improvements

Table 21

Mean Differences Between Group Years
on Concepts Evaluation Index

1972	1974
18.3	19.3

*Means not underscored are statistically
different at the .10 level.

Table 22

Mean Differences Between Sex Groups
on Concepts Evaluation Index

MALE	FEMALE
18.1	19.7

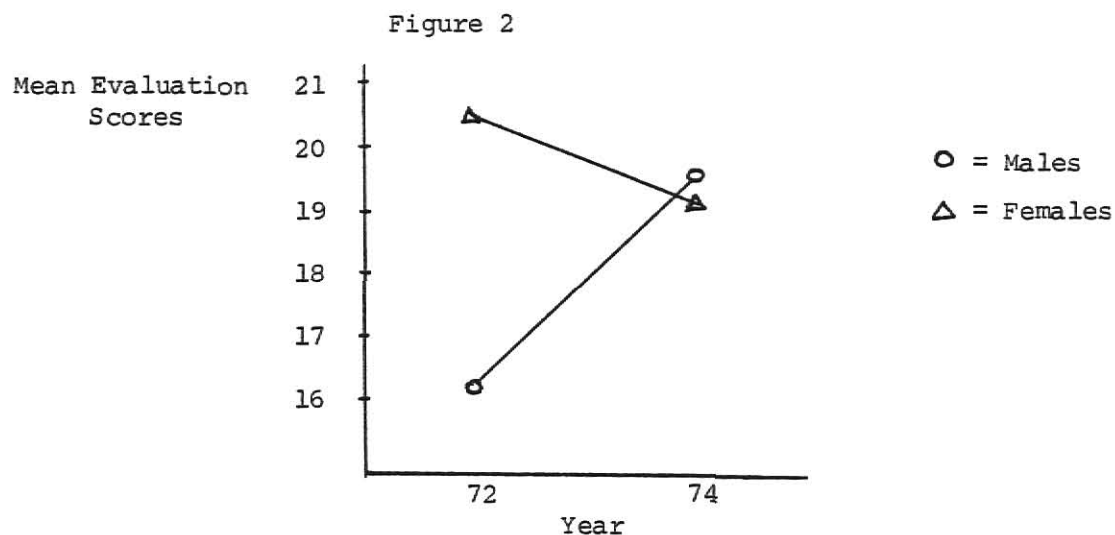
*Means not underscored are statistically
different at .10 level.

and adjustments were expected to cause an increase in the positive direction for the program in subsequent years.

Table 22 shows that the women rated the Concepts program more positively than the men. This was due in part to the general expectations of the students going into the program. The females adjusted quickly to the "learning" environment presented in the program, while the men who were used to a much more performance based physical education class did not. The men, used to direct competition and constant movement, were probably let down initially by the Concepts program which stressed more individuality and competition within one's self. And the women probably responded much more quickly and favorably to this approach,

due especially to their generally lesser physical abilities and athletic prowess.

Finally, there was a significant main effect difference caused by sex x year interaction, $F(1, 58) = 2.97, p < .09$. The results of this interaction can be viewed graphically in Figure 2.



Interaction Between Sex x Year Means on
Concepts Evaluation Index

Figure 2 shows the significant difference to lie in the 1972 program (initial year of program), with converging scores over the next two year period. It cannot be overemphasized that this 72 program was the first year of a new and very different type of program. The different methods, instructors' unfamiliarity of the program, plus student expectations inherited from "traditional" physical education programs, may have caused the males to suffer a let down, while the women may have been more comfortable with the idea of everyone's confusion, rather than just their own. However, once the program settled in and the future

students heard of the program's expectations, the evaluations will begin to level off (as they already had in the 74 program year). This leveling off occurred at a mean score of approximately 19.3 which is quite a bit higher than the midpoint of 15.0. This shows the highly positive view held by former students (after up to eight years of post experience life) in the Concepts program.

By observing specific items (see Table 23), the table shows the positive trend to align itself with the 74 program year with four out of six positive items, while the 72 program received only three out of six (which is still 50%).

Table 23

Percentage Positive-Negative Responses for Each
Item of the Concepts Evaluation Index

ITEM	1972		1974	
	% POSITIVE	% NEGATIVE	% POSITIVE	% NEGATIVE
1	53.3	20.0	44.8	29.0
2	36.6	30.0	39.5	23.7
3	43.3	26.7	31.6	26.3
4	20.0	33.3	47.3	36.9
5	23.3	26.7	21.0	57.8
6	20.0	53.3	5.3	63.7

Items one, two, and three were rated more favorably in both program years. Item one asked if a result of the Concepts course was increased acceptance of the importance of physical fitness through activity. Item two asked if the Concepts course helped the subject's confidence in devising a practical way to meet personal needs for physical fitness.

Item three asked if the Concepts course was productive over a long term basis in providing the necessary knowledge to adapt fitness programs in meeting changing needs.

Adjustments and improvements in the program from 72 to 74, probably accounted for the negative to positive response change for item four between the 72 and 74 programs. Only 20% of all Concepts subjects in 72 felt the Concepts course was more rewarding than their high school "traditional" physical education class. But with the fitness boom in swing and the public's awareness of new and innovative educational approaches, 47.3% of Concepts treated 1974 subjects, felt that the Concepts course was more beneficial than their high school physical education.

Items five and six were more often responded to negatively than positively. In item five, it states that the subject feels that Concepts rated "well above average" when compared to all other classes at KSU. Remembering that this was only a half-semester required freshmen class, to be rated by over 20% as being well above average in personal worth is outstanding. Another important fact to remember is that this class is taken by everyone including future doctors, teachers, lawyers, engineers, business people, etc. When comparing this course with many in their own major, it may have lost some credibility. Possibly, if only to have been compared with required freshmen classes, the ratings would have been more favorable.

Finally, subjects rated the course especially negative as an aid in more efficient work production. Very few perceived this as a benefit.

Summary

Final review of the data would indicate a strong favorable showing of the Concepts treated group when compared with the Quiz-out and Non-Concepts groups. The multivariate analysis showed a highly significant main effect for treatment in favor of the Concepts group. The univariate analysis showed that in three of the five dependent variables (activity, confidence, attitude, benefits, and knowledge) the Concepts treated group scored significantly higher. These included: activity, attitude, and knowledge. The Non-Concepts group was never shown to be significantly higher than the Concepts group in any of the five dependent variables. While the Quiz-out group proved only to be significantly higher than the Concepts group on benefits in the 1972-73 program year. Based upon these findings, it can be inferred that the Concepts course did affect relevant behavior and practices in a positive way. Still further that the Concepts course does produce lifetime health and fitness practices in young men and women.

In 1972-73, there were two basic differences between the sexes. Males were more active and females were more confident. In addressing the females confidence, several studies have indicated that the least active people, knowing the least, many times are those same people who are extremely confident about their own abilities. However, following the females in 1974-75, an increase in activity level is found (comparable to the males) which corresponds to a decrease in confidence (also comparable to the males). So, as the females gained in activity (experience) their confidence dropped to a realistic approximation. Now in 1974-75 the only differences between males and females were the males held more self assessed benefits caused by activity, while the females gained

in attitude. These differences can be attributed to the fitness boom. Males through society's general increase in fitness awareness as well as new, up-to-date, educational programs (like Concepts) have become more cognizant of the importance of activity and what it can do, thereby helping them to understand more of the possible advantages of active living. The females on the other hand were becoming more active and going into health and weight rooms for the first time, all of which were new and exciting experiences. Beginners at anything are shown to be high in attitude and overly enthusiastic. Not particularly interested in benefit, the female was in need of more and diverse activity with new enthusiasm for her fitness plan.

Finally, in looking at year differences one would have to claim the Concepts course had a greater impact in 1972-73. Evidence for this is the three significant positive variables (found in the univariate analysis) for Concepts (knowledge, attitude, and activity practice). While in 1974-75 only one variable was independently significant (knowledge) with two others (attitude and activity) contributing to the overall multivariate difference. But this could be misleading if taken for face value. What really is occurring is a few year post-college settling effect. In other words it takes a few years directly after college for a person to settle down and begin a typical day to day life style. This style would include true activity levels and attitude feelings (which were picked up in the multivariate analysis, but not in the univariate) which had developed in the person's true lifestyle.

In the Concepts Evaluation performed by only Concepts treated subjects, the 1974 program proved more favorable than the 1972 program.

This was probably due directly to the constant changes and updating of information done in order to maintain the importance of the program. The key item in the difference between the programs was the 74 subjects' feeling that the Concepts course was definitely superior to their high school physical education.

CHAPTER V

SUMMARY AND CONCLUSIONS

In an attempt to provide a more pertinent basis for individuals to use later in life, a new approach to teaching physical education has been developed. This new method, the lecture-laboratory approach, consists of a lecture discussing various aspects of physical fitness and then laboratory procedures to help students learn how to meet their own physical fitness needs. Although the theoretical basis of the new lecture-laboratory course is sound little (if any) thorough long-term evaluation of this type of program has been conducted.

The purpose of this study was to evaluate the long term effectiveness of a lecture-laboratory (concepts) physical education class as taught at Kansas State University. More specifically, the study was to determine if any differences could be found in former KSU graduates after one to three years of post-graduate life in any of the following areas: attitude, activity, knowledge, confidence, and benefits, all towards fitness.

Three hundred former KSU graduates served as subjects for the study. They were arranged by treatment, sex, and year of treatment. Those in the control group were the Non-Concepts treated.

Each of the participating subjects of the study completed a questionnaire composed of an Attitude Index, a Confidence Index, an Activity Index, a Benefits Index, and a Knowledge Index. The Concepts treated group also completed a Concepts Evaluation Index, while the Non-Concepts (control group) completed a general information sheet. The Attitude

Index was designed to determine one's attitudes in relationship to fitness and activity. The Confidence Index was designed to determine how confident the subjects were in choosing activities that would benefit their fitness. The Activities Index attempted to determine the type of activity level each subject possessed. The Benefits Index was designed to determine the self-perceived benefits one felt they received from their activity participation. Finally, the Knowledge Index determined the individual's knowledge about fitness and activity.

The reliabilities of these indexes were determined through prior usage. The Attitude Index was .9, the Confidence Index .88, and the Concepts Evaluation Index was a .88. The Benefits and Activity Indexes were determined reliable through use in the nationwide Perrier Study on Fitness (13).

First a Multivariate analysis was conducted to determine if any overall effect had occurred when viewing the five dependent variables as one. Then a univariate two-way analysis of variance was performed to compare treatment groups and sexes. A two-way analysis was also performed to compare sex and year of treatment on the Evaluation Index. Finally, descriptive analysis was done to look at specific item difference.

The multivariate analysis showed a significant main effect difference for treatment groups in both program years [1972-73 $F(10, 156) = 1.84$, $p < .058$ and 1974-75 $F(10, 152) = 2.80$, $p < .003$] with the positive trend in favor of the Concepts treatment both times. The univariate analysis showed the Concepts treated groups superior in three of the five dependent variables. These included activity time (behavior),

attitude about fitness and activity and especially knowledge. The Non-Concepts group never proved significantly higher than the Concepts group in any area.

Females were shown to be significantly more confident (which diminished with more active experience) in 1972-73 than the men, while they were more active. In 1974-75, men felt they received more benefit from their activity and the females were superior in attitude. Both may have been caused through the fitness boom taking place in society.

There seems to be a maturing effect which takes place within the first three years of post-college life in which one settles down somewhat in his/her fitness pattern. During this settling effect one's attitudes and behavior towards activity emerge.

Finally, the concepts evaluation showed the program to be held positive by its students, especially in the 1974 program year. The 1972 program year was the initial year of the program and possibly suffered some management difficulties. Finally, some problems and weaknesses in the program were looked at with possible suggestions for improving them.

Conclusions

The results presented in Chapter Four allow the following conclusions to be made within the limitations of the study:

1. The Concepts course is beneficial in establishing health and fitness practices in young men and women for a lifetime.
2. Those who complete the Concepts course have a higher level of activity, knowledge and attitude about fitness than those

who do not.

3. The Concepts course has brought about a much more realistic view of fitness for those who take it.
4. Knowledge is the key element of the Concepts programs which allows changes in attitude and behavior to result from it.
5. A general maturing effect allowed the 1972-73 Concepts treated group to formulate their attitudes and activity practices into a foundation for their future as compared to the yet unsettled 1974-75 group.
6. Women generally have an unfounded high level of confidence in making fitness decisions which diminish with increased activity and experience.
7. The Concepts course improved from the first to the third year of operation (as determined by the students).
8. The Concepts course, although a truly beneficial experience for students, did have some areas which need improvement based upon the program as conducted in 1974.

Recommendations

Several suggestions arose from the analysis and interpretation of the data in Chapter Four. These are listed below to aid those interested in future research with evaluation of a lecture-laboratory physical education program.

1. An interview type of survey, where no misinterpretation of the questions, would insure complete validity and a 100% return.

2. Further evaluations of this type using the complete questionnaire developed for this study with refinements and expansion of the indexes.
3. A follow-up study on the same subjects in this study after another five to ten year period to determine its effect on their feelings.
4. Another study which eliminates several of the limitations of this study for a more accurate evaluation.
5. A follow-up study on a group of present day Concepts/Quiz-out/Non-Concepts subjects utilizing the same instruments to determine the effects of the program changes since 1974.
6. The need to start this program (which is having a substantial effect on college age people) at a young age where children are open and soak up information to be molded into a part of themselves.

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APPENDICES

APPENDIX A

ATTITUDE INDEX

DIRECTIONS: Below you will find some statements about physical activity. Please circle the letter or letters which best express your feelings about the statements. There are no right or wrong answers, only how you feel!

STATEMENTS ABOUT PHYSICAL ACTIVITY	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1. Physical activity is all right for those who like sports, but is not for me.	SA	A	V	D	SD
2. Physical exercise and activity are as dangerous to health as they are valuable to health.	SA	A	V	D	SD
3. I enjoy taking part in a sport just to get away from it all.	SA	A	V	D	SD
4. I like to participate best in those games that involve working as a team.	SA	A	V	D	SD
5. Physical activity is one way to rid yourself of the worries and tensions of everyday life.	SA	A	V	D	SD
6. One of the main values of sports is to fill leisure time in our automated society.	SA	A	V	D	SD
7. The time some people spend exercising could be better spent in other ways.	SA	A	V	D	SD
8. Sports and games build social confidence.	SA	A	V	D	SD
9. Industry might be wise to substitute exercise breaks for coffee breaks.	SA	A	V	D	SD
10. Competition in sports is often a way to destroy good friendships.	SA	A	V	D	SD
11. Most jobs provide all the exercise and activity a person needs for fitness.	SA	A	V	D	SD
12. Everyone should have skill in several physical activities that can be used in sports later in life.	SA	A	V	D	SD

- | | | | | | |
|--|----|---|---|---|----|
| 13. Social dancing and other similar forms of activity are a waste of time. | SA | A | V | D | SD |
| 14. Health and Fitness are basic to all of life's activities. | SA | A | V | D | SD |
| 15. Participation in physical activities makes for a more wholesome outlook on life. | SA | A | V | D | SD |
| 16. Physical activity experiences are poor in opportunities for worthwhile social experiences. | SA | A | V | D | SD |
| 17. Physical education in schools is <u>not</u> receiving the emphasis that it should. | SA | A | V | D | SD |

APPENDIX B

CONFIDENCE INDEX

DIRECTIONS: Below you will find some statements about your confidence in relationship to physical activity. Please circle the letter or letters which best indicate how confident you are about your ability to do the following statements.

STATEMENTS ABOUT CONFIDENCE	VERY CONFIDENT	QUITE CONFIDENT	IN BETWEEN	QUITE UNSURE	NOT CONFIDENT
1. I can select physical activities which will suit me, be fun, and still contribute to my health and fitness.	VC	QC	I	QU	NC
2. I can determine the fitness areas in which I am most in need of improvement.	VC	QC	I	QU	NC
3. I can accurately assess my own condition regarding physical fitness.	VC	QC	I	QU	NC
4. I know the best ways to assess my own health related fitness.	VC	QC	I	QU	NC
5. I know the purpose and benefits of a variety of exercises.	VC	QC	I	QU	NC
6. I know how to measure my progress towards developing physical fitness.	VC	QC	I	QU	NC

APPENDIX C

DIRECTIONS: Below you will find a list of activities people participate in. Please circle the activities you have participated in during the past week, indicate the frequency you participate during the week, and give an estimation of the duration (typical number of minutes) each time you participated in that activity. Make no marks for activities you do not participate in. Please indicate if you are involved on a seasonal or year round basis for your activities.

<u>ACTIVITY</u>	<u>FREQUENCY DURING THE WEEK</u>	<u>AVERAGE DURATION OF PARTICIPATION</u>	<u>BASIS</u> (S) SEASONAL (Y) YEAR ROUND
Backpacking	1 2 3 4 5 6 7	_____ min.	S Y
Badminton	1 2 3 4 5 6 7	_____ min.	S Y
Baseball/softball	1 2 3 4 5 6 7	_____ min.	S Y
Basketball	1 2 3 4 5 6 7	_____ min.	S Y
Bicycling	1 2 3 4 5 6 7	_____ min.	S Y
Canoeing	1 2 3 4 5 6 7	_____ min.	S Y
Dance, Aerobic	1 2 3 4 5 6 7	_____ min.	S Y
Dance, Ballet/Modern	1 2 3 4 5 6 7	_____ min.	S Y
Dance, Disco	1 2 3 4 5 6 7	_____ min.	S Y
Fitness Calisthenics	1 2 3 4 5 6 7	_____ min.	S Y
Football	1 2 3 4 5 6 7	_____ min.	S Y
Golf, (walking)	1 2 3 4 5 6 7	_____ min.	S Y
Gymnastics	1 2 3 4 5 6 7	_____ min.	S Y
Handball	1 2 3 4 5 6 7	_____ min.	S Y
Hiking	1 2 3 4 5 6 7	_____ min.	S Y
Jogging/running	1 2 3 4 5 6 7	_____ min.	S Y
Karate/judo	1 2 3 4 5 6 7	_____ min.	S Y
Raquetball/Paddleball	1 2 3 4 5 6 7	_____ min.	S Y
Rope Skipping	1 2 3 4 5 6 7	_____ min.	S Y
Rowing, Crew	1 2 3 4 5 6 7	_____ min.	S Y
Skating, Ice	1 2 3 4 5 6 7	_____ min.	S Y
Skating, Roller	1 2 3 4 5 6 7	_____ min.	S Y
Skiing, Cross Country	1 2 3 4 5 6 7	_____ min.	S Y
Skiing, Downhill/water	1 2 3 4 5 6 7	_____ min.	S Y
Soccer	1 2 3 4 5 6 7	_____ min.	S Y
Swimming	1 2 3 4 5 6 7	_____ min.	S Y
Tennis	1 2 3 4 5 6 7	_____ min.	S Y

Volleyball	1 2 3 4 5 6 7	_____ min.	S	Y
Weight Training	1 2 3 4 5 6 7	_____ min.	S	Y
Yoga	1 2 3 4 5 6 7	_____ min.	S	Y
Other _____	1 2 3 4 5 6 7	_____ min.	S	Y
_____	1 2 3 4 5 6 7	_____ min.	S	Y
_____	1 2 3 4 5 6 7	_____ min.	S	Y

APPENDIX D

BENEFITS INDEX

DIRECTIONS: Below you will find statements about some of the possible benefits that physical activity can provide. Please circle the letter which portrays the benefits you personally feel you receive from the physical activities you participate in.

BENEFITS OF PHYSICAL ACTIVITY	DEFINITELY	TO SOME DEGREE	NOT NOTICEABLY
1. Feel better in general	D	SD	NN
2. Positive psychological effects	D	SD	NN
3. Am less tense	D	SD	NN
4. Sleep Better	D	SD	NN
5. Am more relaxed	D	SD	NN
6. Will let me live longer	D	SD	NN
7. Look better	D	SD	NN
8. Concentration	D	SD	NN
9. Feel less tired	D	SD	NN
10. Have become more disciplined	D	SD	NN
11. Have a better self image	D	SD	NN
12. Have gained confidence	D	SD	NN
13. Have improved outlook on life	D	SD	NN
14. Am better able to cope with life's pressures	D	SD	NN
15. Productivity has improved	D	SD	NN
16. Am more assertive	D	SD	NN
17. Think more creatively	D	SD	NN
18. Smoke less	D	SD	NN

APPENDIX E

KNOWLEDGE INDEX

DIRECTIONS: Write in the letter of the best answer in the blank provided.

- _____ 1. If you had a health problem or a disease that was caused by inactivity or lack of exercise, what would it be called?
- a. adapted
 - b. traumatic
 - c. dynamic tension producing
 - d. hypokinetic
- _____ 2. Which of the following types of exercise is best for most adults in order to build strength?
- a. isokinetic
 - b. isotropic
 - c. isometric
 - d. isotonic
- Pedro Sanchez was interested in starting an exercise program. He had never been very good at sports and games, but he was healthy and he could run long distances easily (refers to questions 3, 4, and 5).
- _____ 3. Which part of physical fitness would Pedro probably score high?
- a. balance
 - b. agility
 - c. cardiovascular
 - d. reaction time
- _____ 4. Which part of physical fitness might Pedro score poorly on?
- a. flexibility
 - b. % body fat
 - c. muscular endurance
 - d. coordination
- _____ 5. What would Pedro call the minimum amount of exercise needed to improve his fitness?
- a. fitness level
 - b. threshold of training
 - c. improvement stage
 - d. exercise principle
- _____ 6. Which one of the following is a true statement about controlling body fatness?
- a. diet by itself causes a loss of muscle & fat
 - b. exercise will cause you to eat more
 - c. you should attempt to lose up to 6 pounds a week
 - d. fatness is probably caused by a gland problem
- _____ 7. When jogging what type of exercise is being performed?
- a. aerobic exercise
 - b. isotonic exercise
 - c. anaerobic exercise
 - d. passive exercise

- _____8. After running, what should be your next action?
- a. sit down and rest
 - b. take a hot shower
 - c. continue to walk or slow jog
 - d. do push-ups
- _____9. Which is the best type of exercise for building flexibility and avoiding muscle soreness?
- a. longitudinal stretching
 - b. ballistic stretching
 - c. passive stretching
 - d. active stretching
- _____10. To build fitness you must do the correct amount of exercise. Three (3) factors should be considered when determining "How much exercise is enough." Which of the following is not one of these factors?
- a. stamina
 - b. frequency
 - c. intensity
 - d. duration

APPENDIX F

CONCEPTS EVALUATION INDEX

EVALUATION OF CONCEPTS IN PHYSICAL EDUCATION COURSE

DIRECTIONS: Below you will find some statements which refer to your experience with the Concepts in Physical Education course which you took at Kansas State University. Please circle the letter or letters which best express your reactions to the course. Your responses will help us improve the course, therefore, we are not seeking undeserved praise.

STATEMENTS ABOUT THE CONCEPTS IN PHYSICAL EDUCATION COURSE AT KSU	DEFINITELY TRUE	MORE TRUE THAN FALSE	IN BETWEEN	MORE FALSE THAN TRUE	DEFINITELY FALSE
1. As a result of the Concepts course, I believe improving physical fitness through activity is more important than I thought before taking it.	DT	T	I	F	DF
2. From the knowledge I gained in the Concepts course, I have been able to design practical ways to meet my needs for physical fitness.	DT	T	I	F	DF
3. The Concepts course provided me with enough knowledge to maintain physical fitness thus far in my life.	DT	T	I	F	DF
4. The Concepts course was more rewarding to me personally than were my high school physical education classes.	DT	T	I	F	DF
5. Compared with other courses I took at KSU, the Concepts course rated "well above average" in personal value.	DT	T	I	F	DF
6. As a result of the Concepts course I follow an exercise program which helps me to feel better and therefore, to work more efficiently.	DT	T	I	F	DF

APPENDIX G

GENERAL STATUS SHEET

DIRECTIONS: Please check all the pertinent information concerning the following categories -

Did you take the Concepts in Physical Education class while attending Kansas State University?

YES _____ NO _____

If you did not take the Concepts in Physical Education class, please indicate the appropriate reason:

_____ Exempt because of being a transfer student.

_____ Exempt because of medical reasons.

_____ Exempt because of participation in varsity athletics.

_____ Exempt because of participation in the marching band.

_____ Other (specify)

APPENDIX H



Department of Health, Physical
Education and Recreation

Ahearn Gymnasium
Manhattan, Kansas 66506
913-532-6765

Dear Kansas State University Grad,

This questionnaire is part of my master's thesis designed to determine one's attitudes, knowledge, and habits in relationship to physical activity. Ultimately, the data will be used for updating and improving Kansas State University's Physical Education Concepts program in meeting the changing needs of our students. As a former student at K-State, your willingness to describe your experience and impressions will be of great help in our attempts to upgrade our programs.

Your responses will be completely confidential. The number on the return envelope will be used to verify that you have returned a completed questionnaire. When we receive your envelope, your name will be separated from the envelope to insure confidentiality. Although you are under no obligation to answer this questionnaire I hope you will want to take advantage of this opportunity to help us improve the educational experiences of future students.

The questionnaire should require only a few minutes of your time. Enclosed you will find several sets of questions concerning how you feel about exercise in general, about your current exercise behavior, and about several other factors relating to exercise. Please fill in the information and return in the envelope provided as soon as possible. We would like to conclude our data collection by 4/8/81.

If you choose not to participate, please return the questionnaire, unanswered and we will strike your name from our list. Thank you very much for your help. Your time and efforts will be greatly appreciated! If you have any questions please feel free to contact me.

Scott Slava
Dept. of Physical Education
Ahearn Field House 203
Kansas State University
Manhattan, Kansas 66506

Phone:
913-532-6765

APPENDIX I

FOLLOW-UP POST CARD

Dear K-Stater

Just a reminder to again ask for your help. Recently, you received a survey dealing with your attitudes and behaviors in relationship to Physical Activity. Your cooperation is greatly needed by providing the information on the forms and returning them as soon as possible. Your specific participation in this study is of immense importance in order that our research can be considered valid and unbiased. For this to occur we need a 60% return (currently, we have only a 51% return). We need your help! Thank you for your time and consideration.

Sincerely,

Scott M. Slava

LONGTERM EFFECTS OF A LECTURE-LABORATORY
(CONCEPTUAL) APPROACH TO PHYSICAL EDUCATION

by

SCOTT M. SLAVA

B.S., Slippery Rock State College, 1978

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Health, Physical Education, and Recreation

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1981

the Concepts in Physical Education course as taught at Kansas State University influenced the lifetime health and fitness practices of the young men and women that completed the course. There were 176 (or 59%) former KSU graduates which returned the survey instrument designed specifically for this study. The instrument consisted of an Attitude Index, a Confidence Index, an Activity Index, a Benefits Index, a Knowledge Index, and a Concepts Evaluation Index (the last only being filled out by the Concepts treated group). A multivariate analysis was first used to determine if any overall main effect differences were present when looking at all dependent variables as one. In addition, univariate, chi-square, and descriptive analysis followed to further analyze specific indexes as well as individual item responses. The treatment groups consisted of: those who had successfully completed the Concepts in Physical Education course, those who had quizzed out of the course, and those who had not been exposed to the course (control group). Treatment groups were further broken down into sex (male or female) and year of treatment (1972 or 1974). An a-priori level of significance for this study was determined to be .10. Results indicated that there was a significant main effect difference for treatment groups in both program years [1972-73 $F(10, 156) = 1.84, p < .058$ and 1974-75 $F(10, 152) = 2.80, p < .003$]. The combined effect illustrated in both MANOVA's showed the positive outcomes to be incurred by the Concepts treated group as compared to the other two treated groups. A closer look at the univariate statistics indicate that the most important contributors to this overall effect were the subjects' activity levels, attitude toward fitness, and especially their knowledge of fitness. It was concluded that those students who experience the Concepts program will have a greater level of activity, knowledge, and attitude about fitness and activity than those who do not.