

Social and School Environment as Determinants
of Dropping Out of High School Physical Education

by

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A MASTER'S THESIS

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requirements for the degree

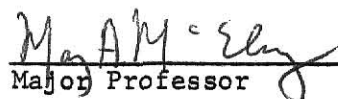
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DEDICATION

This thesis is dedicated with love to the most important person in my life; my wife, Chantal. Without her love and understanding throughout these past months this thesis may have never been completed.

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CHAPTER I

INTRODUCTION

The problem of determining factors that contribute to students' decisions to drop out of high school has received considerable attention in the last twenty years. Researchers have examined various explanations that may uncover why some students drop out of high school activities and ultimately, the high school environment altogether. Through these efforts, many factors have been determined that are linked to the decision to drop out of high school. Bachman, Green, and Wirtanen (1971) have found that "dropping out" of high school is overrated as a problem in its own right--it is far more appropriately viewed as the end result or symptom of other problems which have their own origin outside the school environment. They advocate the examination of factors outside the high school environment, as well as ones within, when trying to predict one's propensity to drop out. They postulated a multidimensional model which included family background factors, ability limitations, school failure experiences, rebellious and delinquent behavior, and personality characteristics, and found many of these factors to be significant in predicting high school dropouts.

While dropping out of high school has received considerable attention from social scientists and educators, withdrawal from particular school activities has been generally neglected. For example, factors that affect a student's decision not to take an elective physical education class during high school has received very limited recognition from researchers in the physical education discipline. The research that has been conducted has utilized a very limited focus; primarily, descriptive analysis focusing on likes and dislikes of required classes, along with studies that have examined student's attitudes towards physical activities. This limited focus of examining factors only from the physical education environment has

added little to our understanding of why students drop out of physical education. This vagueness exists since many more variables, both in the physical education environment and outside of it, that affect the decision to drop out of physical education have not been explored.

Statement of the Problem

The purpose of the proposed investigation is to determine which variables are significant in predicting which students are likely to drop out of high school physical education following their fulfillment of the degree requirement. Specifically, individual attributes, high school environment with special emphasis on the physical education environment, and parental influence will be examined.

Significance of the Study

Freischlag (1973) states there is a "law of affect" where people tend to repeat those experiences that are perceived as pleasant and in which they have found success. Since the inclusion of elective physical education classes into the high school curriculum, very few researchers have attempted to find factors that are predictive of who is not likely to continue to participate. This study is significant in that it utilizes a multidimensional model to locate factors that are predictive of nonparticipation in an elective physical education class.

This study is also significant in its utilization of many independent variables that are novel to the study of dropouts from physical education.

Hypotheses

This study addresses the following hypotheses:

1. Conflict of perceived teacher and student class objectives will be the single best predictor of dropping out.
2. Hypotheses from the individual attributes category are:

- a. females will have the tendency to drop out of physical education more than males
 - b. an inverse relationship will exist between self esteem and dropping out
 - c. dropouts will participate in physical activities now to a lesser extent than stay-ins
 - d. the most significant variable from the individual attributes category will be self esteem.
3. Hypotheses from the high school environment are:
- a. a direct relationship will exist between school size and dropping out of physical education
 - b. an inverse relationship will exist between athletic participation and dropping out of physical education
 - c. subjects who perceived popularity to be based on athletic participation will not have dropped out of physical education
 - d. the most significant variable from the high school environment will be athletic participation
4. Hypotheses from the physical education environment are:
- a. an inverse relationship will exist between years required and dropping out of physical education
 - b. an inverse relationship will exist between average grade received and dropping out
 - c. subjects who perceived it most important to defeat opponent as a game objective will have elected to participate in physical education
 - d. dressing and undressing will be the most disliked

aspect of physical education class by both dropouts and stay-ins

- e. conflict of perceived teacher and student class objectives will be positively related to dropping out

5. Hypotheses from the parental influence category are:

- a. a direct relationship will exist between conflict of importance for physical activity and dropping out
- b. a direct relationship will exist between role-modelling of mother's participation and dropping out
- c. a direct relationship will exist between role-modelling of father's participation and dropping out
- d. the most significant variable from the parental influence category will be conflict of importance for physical activity

Delimitations

The following describe the boundaries of the study:

- 1. Data from study are representative of a population of individuals who went on to a four-year public university after graduating from high school.
- 2. Sampling of general unit required physical education classes at only one university.

Limitations

- 1. Subjects may not have been aware whether their physical education class was required or elective.
- 2. Self-esteem was measured several years after dropout decision was made.

3. Subjects' recall of past experiences may have been inaccurate.
4. Questionnaire was administered in gymnasium, which may have affected responses.

Definition of Terms

Drop out

Any student who did not participate in an elective physical education class during high school.

Stay-in

Any student who did participate in an elective physical education class during high school.

Individual Attributes

The category of independent variables that are distinctly associated with an individual.

Self Esteem

The degree to which an individual respects himself and considers himself worthy. (Rosenberg, 1965).

Present Activity Involvement

The number of minutes a subject participates in physical activities per week.

High School Environment

The physical and social characteristics of a high school.

Size of High School

The size of high school is the combination of the number of students enrolled and the population of the city where the high school is located.

Athletic Participation

The number of sports and number of seasons participated in sports were

combined to create a numerical value that was representative of participation on sport teams.

Popularity in High School

Student's perception of who the most popular group was in their high school.

Physical Education Environment

The category of independent variables that are characteristic of participation in a physical education class.

Years Required

The number of years a subject was required to participate in physical education during and before high school.

Game Objective

The subject's goal for playing a game during physical education class.

Conflict of Class Objectives

The degree of difference between the perceived teacher and student class objectives.

Parental Influence

The category of independent variables that are distinctly associated with parents' effect on subject's participation in physical activity.

Conflict of Importance for Physical Activity

The difference between the subject's importance for physical activity and perceived parents' importance for him to be physically active.

Role-Modelling of Mother's Participation

The difference between mother's participation in physical activities and subject's participation with mother in physical activities.

Role-Modelling of Father's Participation

The difference between father's participation in physical activities and subject's participation with father in physical activities.

Physical Activity

Exercising, playing sports, or anything that is done to improve health, comprise the aspects of physical activity.

High School

Grades 9 through 12 are defined to be high school years.

CHAPTER II

REVIEW OF THE LITERATURE

Factors which affect a student's decision not to take an elective physical education class during high school have received very limited recognition from researchers in the physical education discipline. A review of the literature revealed only two studies whose primary focus was on dropouts from physical education. We have gained little understanding from these studies of why students decide not to participate in elective physical education. This vagueness exists because of their limited focus of concentrating on variables contained only in the physical education environment. To build a sound theoretical framework for this study, it was necessary to examine other areas of research to discover factors that have been found to be effective in predicting withdrawal from a group. Summaries of studies in the following areas are contained in this chapter: (1) dropouts from physical education, (2) attitudes toward physical education (3) fitness program dropouts, (4) dropouts from high school, and (5) parental influence.

Dropouts from Physical Education

The problem of students opting not to participate in an elective physical education class was observed prior to World War II. During this time, Baker (1940) noticed that the proportion of students engaging in any but required physical education classes was seldom more than one of every five. She examined factors of physical characteristics and attitudes (likes and dislikes of physical education) of women to determine which may have influenced their decision to participate in physical education. She found three variables that were significant to participation in physical education; namely academic environment, menarcheal age, and chronological

age, in descending order. Based on the analysis of the data, Baker concluded the following:

1. School environment seemed conducive to larger participation;
non-academic to smaller
2. Girls who reached the menarche after fifteen participated
more extensively in physical education activities than
those who reached it earlier
3. Amounts of participation in physical education varied
inversely with chronological age.

A more recent study conducted by Hyland and Orlick (1975) sought to find reasons why students might elect to enroll in a physical education class. Their sample was ninth grade students, comprised equally of individuals who elected to enroll in a physical education class and those who did not. They asked the subjects to list all of the reasons why a student might or might not elect to enroll in physical education. They found that enjoyment was mentioned by 63%, and ability by 40% of the subjects as reasons to enroll. Inability was mentioned by 54%, and dislike by 52% of the subjects as reasons not to enroll. The Rosenberg Self Esteem test and an adaptation of the Thomas Self Concept-Values Test were also administered to the subjects. The findings indicated that the subjects who elected to enroll in physical education had the highest score in global self esteem, personal perception of ability, and personal perception of body image. This descriptive analysis of self esteem, personal perception of ability, and personal perception of body image did not allow for a breakdown of the data for an analysis of why students elect or dropout of physical education. The neglect of the researchers in their analysis of data makes it impossible to determine if the differences in the above stated variables were predictive of participation in physical education.

Attitude Toward Physical Education

Attitudes have long been of interest to researchers in the physical education discipline. Studies have been conducted that focused on factors which contributed to the formation of attitudes toward physical education, (Bell and Walters, 1953; and Brumbach & Cross, 1965), the relationship between attitudes and success in physical education (Vincent, 1967), and how to change attitudes toward physical education (Freischlag, 1973).

Of primary interest to this study were the factors which were found to be the contributors to the formation of attitudes toward physical education. Bell and Walters (1953) utilized the Wear Attitude Scale to measure the attitude toward physical education of females at the University of Michigan. They found that freshmen who had physical education in high school scored higher than those who did not. A positive significant relationship was found to exist between attitude and enjoyment of physical education classes. Brumbach and Cross (1965) measured the attitude toward physical education of all male, lower division students entering the University of Oregon. To measure the subjects' attitude toward physical education, they utilized the Wear Attitude Inventory, Short Form A. Subjects were also asked to complete a questionnaire of descriptive information about their high school and physical education background. They found support for Bell and Walters' (1953) conclusion that the more years of physical education a student has had in high school, the better his attitude is likely to be. They also found that athletes have better attitudes toward physical education than non-athletes. Students who attended smaller high schools (enrollment under 300) were found to have had better attitudes than students from larger schools.

The decision not to utilize attitude toward physical education as an independent variable in this study was based on the researchers' belief

that the results would be obvious. Hyland and Orlick (1975) showed that enjoyment was the primary reason why a student would elect to enroll in a physical education class. Bell and Walters (1953) showed a positive significant relationship between attitude and the extend of enjoyment in physical education class. It appears logical that a student who has a positive attitude toward physical education would have enjoyed his required physical education class and would have participated in an elective one.

Fitness Program Dropouts

Numerous motives have been reported to affect participation in regular exercise programs (Roth, 1974; Teraslinna et al., 1970). One study was concerned with the question of whether the number or type of fitness objectives that an individual sets upon entering fitness programs has an effect on his adherence to the program (Danielson and Wanzel, 1978).

Roth (1974) conducted a qualitative study utilizing participant-observation of informal exercise groups. Through his observations, he noted four motives that affected participation in the group. The four motives were: physical pleasure or pain associated with exercise, desire to improve health to increase longevity, social encouragement or disapproval of participation, and self concept as related to participation. Teraslinna, Partanen, Oja, and Koskela (1970) found that health improvement, physical fitness improvement, and improvement of working capacity were the most important motives for participation in an exercise program. Their findings are limited due to the fact their sample was comprised of only executives who were willing to participate in an exercise program. Danielson and Wanzel (1978) were concerned with the relationship between a dropout's objectives upon entering the exercise program and how these objectives interacted with his length of adherence to the group. The most important factor relating to adherence to the group was found to be

the attainment or non-attainment of objectives. "People who did not attain their objectives tended to drop out of the program much faster than those who did attain them." (Danielson and Wanzel, pg. 319).

In a similar study, Larson and Catton (1961) asked members and officers of an unidentified voluntary association to rate goals for their organization. They found a positive correlation existed between the number of objectives that a member had in agreement with the officer's objectives and the amount of participation the member spent in the organization.

Dropouts from High School

Since the beginning of the "Anti-Dropout Campaign" in the early 1960's, there has been a growing library of books, articles, and research monographs concerned with the high school dropout problem. The majority of the studies utilized as their source of dropout data the "after-only" design in which those who have already dropped out of high school are compared with those who remained in school. This leaves us in doubt about the findings of a study that utilized this type of design, because what appeared to be the result of dropping out may have actually been a cause.

Since limitations do exist in studies that utilized an "after-only" design, it was decided to concentrate on the findings of the "Youth in Transition" study (Bachman, Green, and Wirtanen, 1971). This study was designed specifically to measure changes over time in 2,227 boys. Data was collected from the subjects at four points in time. "The first data collection took place in the fall of 1966, when the subjects had just entered tenth grade. Additional data collections took place in the spring of 1968 (the end of the eleventh grade for most boys), the spring of 1969 (just before most were graduated), and the spring and early summer of 1970" (Bachman, Green, and Wirtanen, pg. 14). The significant finding of

the study was that dropping out is a symptom of other problems which have their origin much earlier in life.

Many factors were found to be predictive of dropping out of high school. Two of the most important predictors were poor classroom grades and being held back. A negative relationship was found to exist between family socio-economic level and dropping out. It was also noted that if a boy was the son of dropouts, he stood a better than average chance of becoming a dropout himself. This potential dropout was found to be above average in rebellious and delinquent behavior, somatic symptoms, and negative affective states; and below average in self esteem, needs for self development, commitment to social values, feelings of personal efficacy, and occupational aspiration. It should be noted that the researchers warn that a number of these differences which appear "on the average" are not really very large between dropouts and high school graduates who do not go on to college.

In the Brumbach and Cross (1965) study cited earlier, individuals who participated in interscholastic athletic programs had significantly higher attitude scores toward physical education than those who did not participate. They utilized the Wear Physical Education Attitude Inventory, Short Form A (Wear, 1955) to measure the attitudes toward physical education of all subjects. A score on this Inventory could range from 30 (the poorest possible score) to 150 (the maximum.) They found that athletes had a mean score of 122.01, and the non-athletes had a mean score of 114.32. This difference was significant at the 1 percent level of confidence.

The size of high school has been found to have a significant effect on its students' attitudes toward physical education (Brumbach and Cross, 1965) and participation in extracurricular activities (Kleinert, 1969; and Baird, 1969).

Brumbach and Cross (1965) compared the attitude scores toward physical education of subjects from four different size high schools, and found that a negative relationship existed between school size and attitudes toward physical education. They found that the only significant differences occurred when the smallest schools (those with less than 300 students) were compared to the other three sizes.

Kleinert (1969) examined the relationship between size of high school and student activity participation. Sixty-three schools were randomly selected for use in this study. The schools were then classified as being either "small" (0-599) students, "medium" (600-1,499 students), or "large" (1,500 or more students.) Students' participation in extracurricular activities were gathered from all schools. It was found that a negative relationship existed between school size and participation in extracurricular activities. More specifically, the proportion of students participating in activities was highest in the small schools, and more students from the small schools participated in several activities than did students from larger schools.

Baird (1969) attempted to study Barker and Gump's (1964) major hypothesis that stated small and large schools had approximately the same number of "behavioral settings" (facilities and activities) in which students participate, but small schools have fewer students per setting. It was therefore concluded that a greater proportion of students in small schools would participate in activities than would students in large schools. To test this hypothesis, Baird (1969) obtained a sample size of 21,371 subjects by systematically drawing every thirty-third, sixty seventh, and one hundredth student from the list of all students who took the American College Testing Program (ACT) between November, 1965, and October, 1966. From the information reported, Baird examined the relative

influence of high school size, population of home community, and the interaction between the two on non-academic achievements. He found that high school size and the interaction effect were significant for the total score of all non-academic achievements. Baird then concluded that students from small schools participate to a greater extent in a variety of areas than do students from large schools.

To determine if the higher rate of high school achievement of students from small high schools transfers to their college years, Baird examined the same areas of non-academic achievements in the previous study of men and women enrolled in 29 colleges. He found that there were no great differences in the college achievements of students from small and large high schools. He did, however, find that college achievement seemed negatively related to college size. Baird concludes that the hypothesis of Barker and Gump (1964) was supported.

Garbarino (1980) performed an analysis of the available evidence on school size to determine its relative effect on adolescent development. He uncovered three important hypotheses about school size. First, school size has an effect on academically and socially marginal students. It appears that small school contain a personalized social climate that elicits participation and prosocial behavior from marginal students. The large schools emit a depersonalized environment which tends to deprive students of participatory roles. The second hypothesis states there is a "threshold effect" of school size. It seems there are not significant differences in the effects of school size once the enrollment goes beyond an "optimal" size. This optimal figure needs to be adjusted with regard to student characteristics--"As the academic marginality of students increases, optimal school size decreases." The last hypothesis contends that the recent trends to produce large schools has "conspired" against our youth. To support this, Garbarino quotes Winston Churchill as saying, "We

shape our surroundings and then our surroundings shape us." What Garbarino is implying is that we are making our youth antisocial by "forcing" them into a depersonalized environment.

Glatthorn (1969) supports the recent trends to produce large schools, because they can offer the students "curricular diversity". Through this diversity each student has the chance to develop his unique potential because he has various options from which to choose. The student in the large high school has the opportunity to develop individual fulfillment. Contrary to this are the students in small schools who do not have a diversity of classes to choose from; rather, there is an environment of uniformity which Glatthorn believes "is the death'knell of individuality."

Coleman (1961) sought to examine the ways in which teenage males compete for recognition and respect in order to win status in the eyes of other teenagers. He determined that the most important aspects for gaining status were athletic achievement, scholastic achievement, and popularity with girls. Subjects were asked to name from their class which boy was the best athlete, best student, and most popular with the girls. Subjects were then asked who they would like to be friends with and be like, who was in the leading crowd, and who had the most friends. Coleman found that a boy who is popular with the girls seemed to gain recognition and respect among his peers, not as much as the athlete, but considerably more than an outstanding scholar. He, therefore, concluded that athletic prowess is the single most important factor contributing to status among adolescents.

Parental Influence

A positive correlation has been found to exist between parental attitudes toward physical activity and their childrens' participation in physical activity (McGee, 1956; and Balazo, 1975); and between family practices revolving around physical activities and children's participation in

sports (Rarick, 1949). One study (Cervantes, 1965) has found a relationship between total family participation in recreational activities and dropout percentage.

McGee (1956) found that the children of parents with positive attitudes toward physical education exhibited positive attitudes and behaviors in their physical education classes. Balazo (1975) examined the backgrounds of 24 female Olympic athletes through the use of a survey and found that both parents had been highly supportive of their daughter's physical efforts at early ages.

Rarick (1949) examined the backgrounds of ten boys and girls who scored high on seven physical performance tests and compared them to ten boys and girls who scored low on the same tests. He found significant differences in parental behaviors existed between the two groups. The children who scored high on the tests reported being frequently involved in parent-child play interactions, while low-scoring children reported no parent-child play interaction. The high scorers also reported that a play area was provided for them at home; the low scorers reported no play area was provided for them.

Cervantes (1965) examined the participation in recreational activities of the total family of 25 "matched" pairs of white youths. In all pairs, one had dropped out of high school, and the other was successfully completing the last semester of his high school education. He found that 79% of the high school dropouts' families participated in recreational activities together either "very infrequently" or "infrequently." Opposite of this finding was that 75% of the graduates' families were accustomed to participation together in recreational activities.

SUMMARY

This review showed that studies which concentrated on variables contained only in the physical education environment has done little to enhance our understanding of why students decide not to participate in an elective physical education class.

More specifically, Baker (1940) only examined the factors of physical characteristics and attitudes (likes and dislikes of physical education) of women to determine which may have influenced their decision to participate in physical education. She found that: school environment seemed conducive to larger participation, females who reached the menarche after fifteen participated more extensively in physical education activities, and amounts of participation was inversely related to chronological age. Hyland and Orlick (1975) examined reasons why ninth grade students might elect to enroll in a physical education class. They found that enjoyment and ability were mentioned as reasons to enroll, and inability and dislike were mentioned as reasons not to enroll.

The major weakness of both studies was their confined examination of personal factors associated with factors contained in the physical education environment. The researchers neglected to examine social factors outside of the physical education environment to determine if they influenced the student's decision to drop out of physical education.

It was, therefore, necessary to examine other studies not associated with the physical education environment to locate factors that have been found to be significant in predicting the withdrawal from a group. Many predictive factors were located, and utilized to build a sound theoretical framework on which this study was based.

CHAPTER III

PROCEDURES

A description of the procedures used in this study will be explained in this chapter. These procedures were approved by the Committee for Rights and Welfare for Human Subjects, Department of Health, Physical Education, and Recreation, at Kansas State University. This chapter is comprised of four basic sections: (1) selection of subjects, (2) data collection (3) construction of indicators, and (4) statistical procedures.

Selection of Subjects

All students attending the first session of the spring semester 1982, Concepts of Physical Education class were chosen as subjects. Since Concepts is required for all students at Kansas State University, the concepts class was selected for this study because of the likelihood that the individuals enrolled in a required class would be representative of the entire student population.

There were 610 students enrolled in the concepts laboratory classes at the time the questionnaire was distributed. Although the concepts classes are typically comprised of freshmen, some sophomores, juniors, and seniors do enroll in this course. For the specific academic standing of subjects in this study, see Table 1.

Table 1

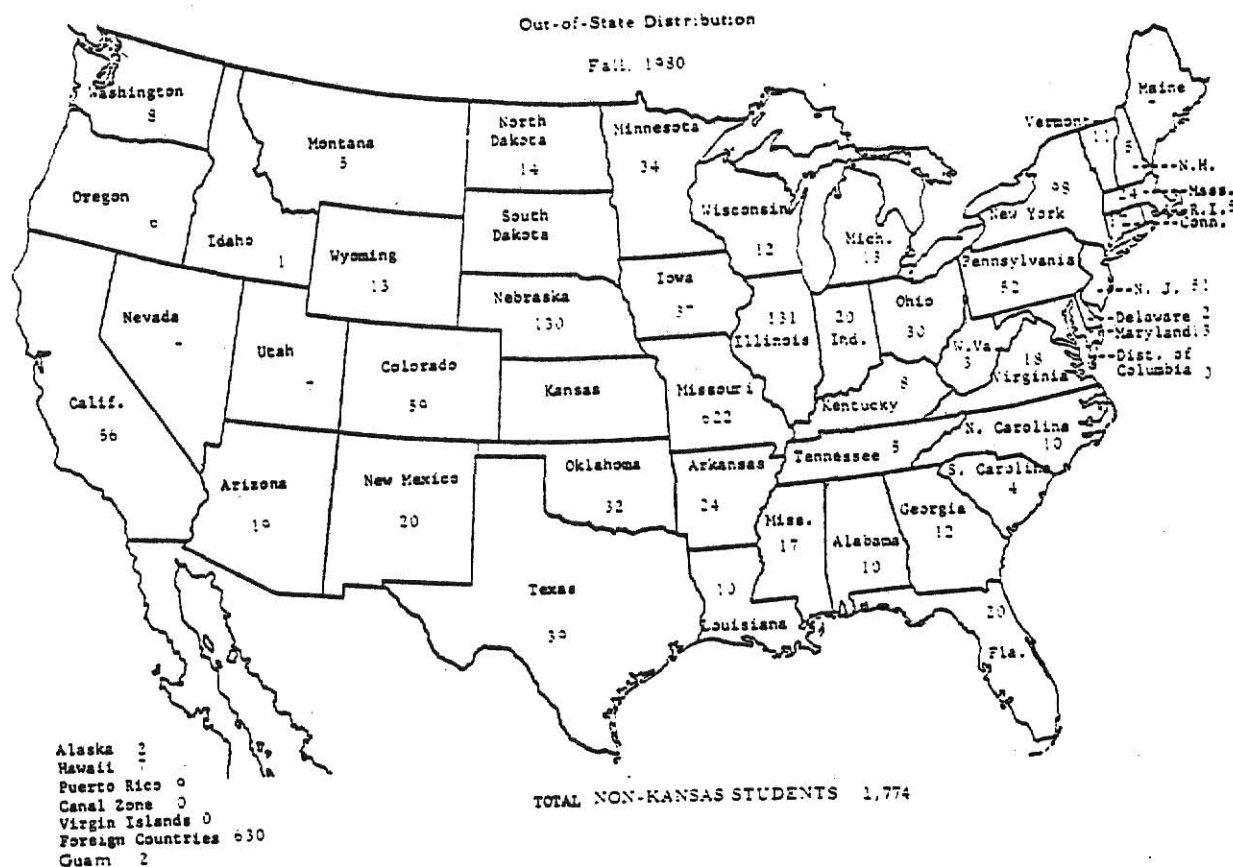
Academic Standing	Number	Percent
Freshmen	383	63%
Sophomores	84	14%
Juniors	54	9%
Seniors	57	9%
Unknown*	32	5%
Total	610	100%

*The unknown category is comprised of students who add the class after the attendance sheets have been printed. In many instances, the instructor who adds them to his class does not record their academic standing.

Characteristics of Kansas State Students

Information on the characteristics of Kansas State students in general was supplied through a report published annually through the Center for Student Development (Phelon and Lynch, 1982). As depicted in their report, students who come to Kansas State represent every state in the Union. Approximately 10% of Kansas State students are from out-of-state. Four percent of the students enrolled at Kansas State are international students who represent 70 countries, with the greatest numbers from Nigeria, Iran, and Taiwan. For exact numbers of out-of-state and international students, see Figure 1. For exact numbers of in-state students, see Figure 2.

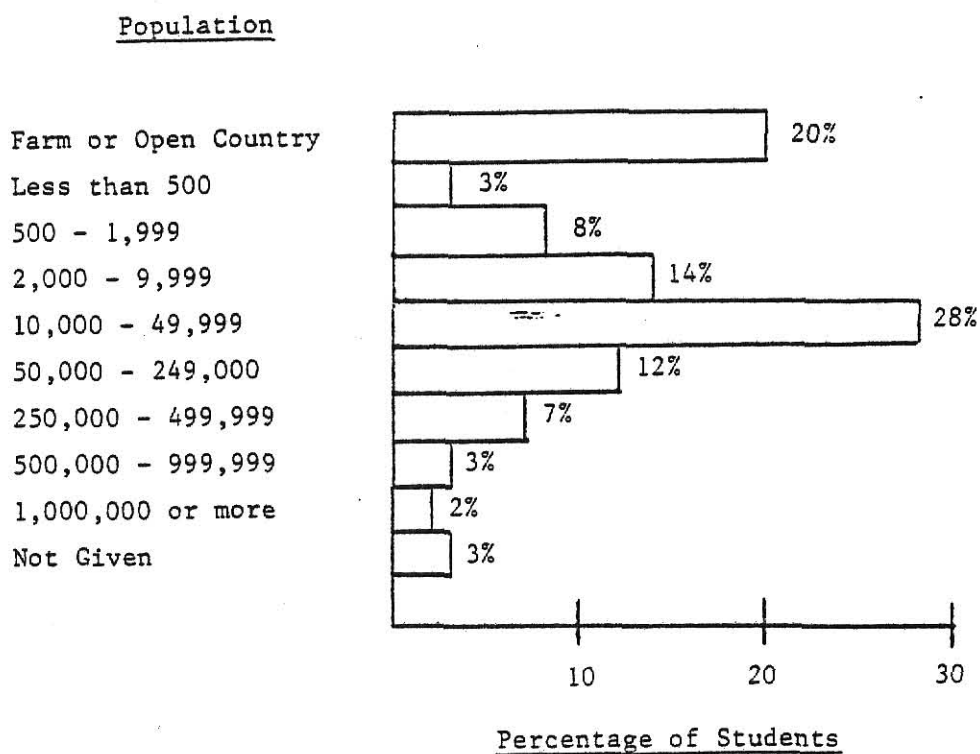
Figure 1



Seventy-three percent of Kansas State's 1981 freshman class came from home communities with a population of less than 50,000. Figure 3 provides a breakdown of the home communities of the 1981 freshman class.

Figure 3

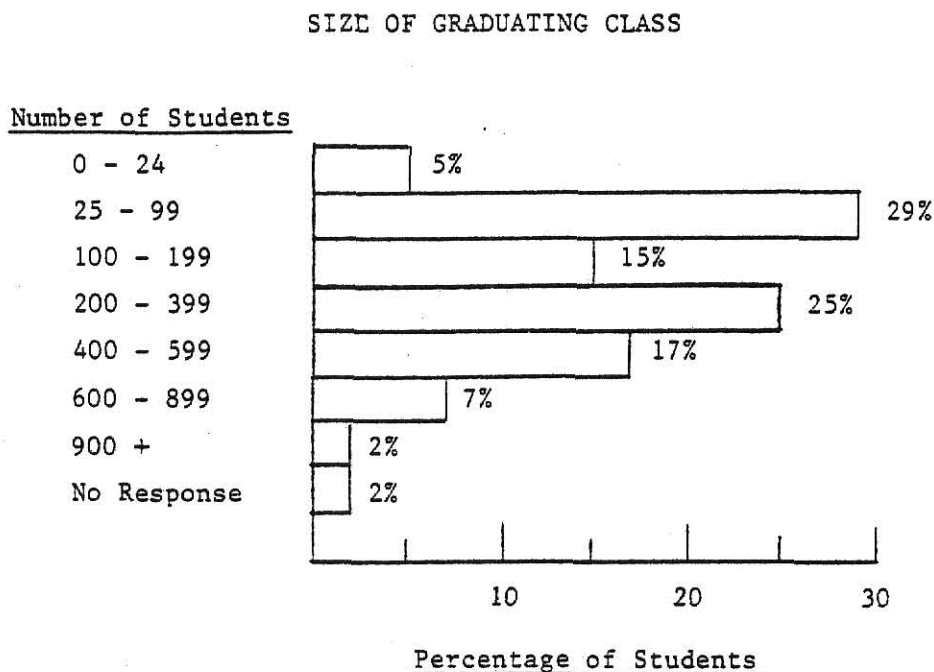
DESCRIPTION OF HOME COMMUNITY



ACT, 1981

Many of Kansas State University's students come from fairly large schools. Nevertheless, almost 50% of the students come from high schools that had less than 200 students in the graduating class. Figure 4 depicts the size of the high school graduating class of Kansas State students.

Figure 4



ACT, 1981

Data Collection

On the fifth class meeting, all students enrolled in Concepts of Physical Education were asked to fill out a short questionnaire (Appendix A). At the beginning of the class, each laboratory instructor explained to the subjects that the completion of the questionnaire was completely voluntary. The instructor read to the class the informed consent sheet (Appendix B), and passed it around for the students to sign. Once the informed consent sheet had been signed, the instructor made the following statement. "You are not required to fill out the questionnaire. If you do fill it out, do not put any identifying characteristics, such as name or social security number on the questionnaire to insure anonymity. You may leave blank any question that makes you feel uncomfortable. Physical activity

means exercising, playing sports, or anything that is done to improve health. Remember that high school is to be considered as grades 9-12." Once the instructor made this statement to the subjects, the questionnaire was distributed and then completed by the subjects.

Construction of Indicators

Independent variables utilized in this study were derived from four general categories. The four categories were: individual attributes, high school environment, physical education environment, and parental influence. The indicators of each independent variable are discussed separately.

Individual Attributes

The independent variables of sex, self esteem, and present activity involvement were derived from the category of individual attributes.

Self Esteem. The Rosenberg Self Esteem Scale (Rosenberg, 1979) was utilized to measure global self esteem. Subjects were asked to either strongly agree, agree, disagree, or strongly disagree to each of the questions 11-20 on the questionnaire. These ten questions were the ten items that comprise the RSE. The Likert format was used to score the responses. Scores of global self esteem were determined by giving one point to the most positive answer. Scoring then continued in an ascending fashion, two points for the second most positive response, three for the next, and four for the least positive response. For questions 11, 13, 14, 17, and 20 the most positive answer was strongly agree. For questions 12, 15, 16, 18, and 19, the most positive response was strongly disagree. The RSE is usually scored using the Guttman procedure, but similar results appear when using the Likert format. Sibler and Tippet (1965) showed reliability of $r = .85$ for the RSE using the Guttman scale, separate validation, however has not been conducted when using the Likert format. Bachman, Green, and Wirtanen (1971) showed that a score for self esteem of

a subject entering the tenth grade changed by only one-fifth of a standard deviation by the time the subject completed one year of college.

Present Activity Involvement. Subjects were asked to report the number of minutes per week they spend improving their health and participating in recreational activities. The intent of this question was to determine if there is a difference in the amount of time spent for physical activities between drop-outs and stayins.

High School Environment

Three independent variables were derived to measure the high school environment. The independent variables were: size of high school, athletic participation, and popularity in high school.

Size of High School. The indicator for size of high school was based on two factors; first was the population of the city where the high school was located, and second was the number of students in the high school. Subjects were asked to choose from four categories for population of city, and three categories for number of students in high school. The specific categories were:

Population of city -- a. Less than 5,000

b. 5000 - 20,000

c. 20,000 - 50,000

d. Over 50,000

Number of students -- a. 1A-2A (less than 130)

b. 3A-4A (131-420)

c. 5A-6A (421 and over)

*The 1A-6A categories are based on the Kansas State High School Athletic Associations' classification system.

*Numerical values assigned to responses were: 1 for a, 2 for b, 3 for c, and 4 for d.

The decision to include both city population and number of students to define size of high school is an attempt to better classify the size of the school. The common practice of classifying a high school on number of students alone is misrepresentative, as it places a small school in a small town into the same category as a small school in a large city. The same is true for a large school in a large city and a large consolidated school in a rural setting. In order to better classify school size, the researcher combined city population and number of students into one numerical value. The numerical value for school size was formed by multiplying the response to city population by ten, and adding the response to number of students. A school size of 41 would then represent a subject who attended a small school in a large city.

Athletic Participation. An index was designed to measure not only if the subject participated in inter-scholastic athletics, but also how many sports and number of seasons in which he had participated. This index was designed based on the premise that the extent to which an individual participated in athletics would be more descriptive than knowing if he was merely an athletic participant. An example of how numerical values were assigned to athletic participation is given below.

6. Did you participate in interscholastic athletics during high school?

Yes No

If yes, which ones:

<u>football</u>	<u>1</u>	Years participated
<u>basketball</u>	<u>3</u>	Years participated
<u> </u>	<u> </u>	Years participated

Number of sports = 2

Number of seasons = 4

Formula for the determination of Athletic Participation.

$$2(\text{number sports}) \times 100 + 4(\text{number of seasons}) = 204 \text{ (ath. part.)}$$

Popularity in High School. Popularity was measured by the following question: "Some students are more popular at school than other students. Which of the following groups do you think were the most popular at your high school?" Subjects were asked to place a 1 by the most popular and a 2 by the second most popular groups. Group choices were derived from questions used in a study by Coleman (1961). Subjects had a choice of the following groups: students who receive good grades, students who participate on sports teams, students who are active in student government, and students who date a lot. No single answer was considered correct, and the four groups were considered as four independent variables. An example of how numerical values were assigned to responses for popularity in high school is given below:

24. Some students are more popular at school than other students. Which of the following groups do you think were the most popular at your high school? (Put 1 by the most popular and a 2 by the second most popular).

- ☐ Students who receive good grades
- 1 Students who participate on sports teams
- ☐ Students who are active in student government
- 2 Students who date a lot

Numerical values were assigned so that the most popular group would have the greatest value. The numerical values for these independent variables would now be a 2 for students on sport teams, and 1 for students who date a lot, and a 0 for the other two groups.

Physical Education Environment

The dependent variable of elective physical education class dropout was derived from the physical education environment.

Five independent variables relating to required physical education classes were derived to measure the physical education environment. The independent variables include: years physical education was required, average grade received, objectives for playing a game, dislikes of class, and conflict of perceived teacher and student class objectives. The indicators of each of the variables are explained below.

Dropout. Each subject was asked to respond to the question, "Did you take an elective physical education class in high school?" A negative response indicated that the subject was a dropout from elective physical education class.

Years Required. The years a subject was required to take physical education classes was measured by two questions. The first was the number of years the subject was required to take physical education before high school, and the second was the number of years physical education was required during high school. The two responses were combined into one numerical value by multiplying years before by ten and adding years during. The decision to combine the two responses rather than add them together is based upon the premise that requirements before high school may affect the subject's decision to take an elective class differently than requirements during high school. For example, a subject who was required to take physical education five years during grade school and one year during high school may be affected differently than a subject who was required to take physical education three years in grade school and three years in high school, but they both were required to take physical education a total of six years.

Average Grade. Subjects were asked to report their average grade received for their required high school physical education classes. Numerical

values assigned to responses were: one for the response of A, two for B, three for C, and four for D.

Game Objectives. The subject's game objectives were measured by the question: "When I was playing a game in class, I wanted to." Subjects had three choices: (1) defeat my opponent or the other team, (2) play as well as I could, and (3) play fairly (to play by the rules all of the time). This question was originally used by Webb (1968) in his study of the concept of professionalized attitudes. Subjects were asked to rank the three choices by giving a 1 to the most important, a 2 to the second most important, and a 3 to the third most important. Responses were considered neither right nor wrong, and the three choices were utilized as three independent variables.

Dislikes. Subjects were presented with six possible dislikes of physical education classes. They were asked to place a 1 by the most disliked, a 2 by the second most disliked, and a 3 by the third most disliked. Numerical values were reversed to range from 3 for most disliked to 0 for a dislike that was not picked by the subject. The dislikes include: dressing and undressing for class, class too large, length of class period, competitive environment, classes were coed, and classmates could see my skill level. All six choices were each utilized as independent variables.

Conflict of Class Objectives. A weighted scale was developed from the responses to the following questions: "During class I wanted to" and "During class my teacher wanted us to learn how to!" The subjects were asked to rank order the three most important objectives to both questions. The goal of these questions was not to see which objectives were the most important, but to determine if the subject's three most important objectives were similar to their perception of the three most important teacher objectives. A scale ranging from zero (student's objectives were

all different than perceived teacher objectives) to three (student's objectives were the same three as perceived teacher objectives) was created.

Parental Influence.

Three independent variables were derived from the category of parental influence. All three variables were related to the central topic of physical activity. The three variables include: importance of physical activity, role-modeling of mother's participation, and role-modeling of father's participation.

Conflict of Importance for Physical Activity. The indicator of importance of physical activity was created from the difference between importance of physical activity to subject and the perceived parents' importance for subject to be physically active. To assign a numerical value to this difference, the subjects were asked the question, "How important is it for you to be physically active?" Subjects had a choice of five responses: very important, somewhat important, important, not important, and definitely not important. The subjects were then asked the question, "How important is it to your parents that you are physically active?" Subjects had a choice of the same five responses as the previous question. Scoring of the responses ranged from a 1 for a response of very important to a 5 for a response of definitely not important. To assign a numerical value for the difference between the two responses, a formula was created. This formula multiplied the response for importance to self by ten and added the response for importance to parents.

Role-Modelling of Mother's Participation. The independent variable of the difference between mother's participation in physical activities and mother's participation with subject in physical activities was indicated by

the response to two questions. The first question was "How often does your mother participate in physical activities?". The second question was "During high school, how often did you participate in physical activities with your mother?" Subjects were asked to choose from five responses: never, once a year, once a month, once a week, and more than once a week. Scoring of the responses ranged from a 1 for a response of never to a 5 for a response of more than once a week. To categorize the difference in responses, the score for mother's participation was multiplied by ten and the score for participation with mother was added to it.

Role Modelling of Father's Participation. The independent variable of role modelling of father's participation was measured using the same procedure as the independent variable of role-modeling of mother's participation. The only difference being that responses were for father's participation.

Statistical Procedures

Since data from this study is unbalanced (one cell in a factorial model contains a different number of values from the other cells), a General Linear Model (GLM) was used. Data was analyzed in the following manner:

1. A GLM using all of the independent variables except present activity involvement
2. Least square means of the most significant variables
3. Least square means of present activity involvement
4. Predicted values for each observation from independent variables
5. General descriptive information

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to determine which variables from the categories of the individual attributes, high school environment, physical education environment, and parental influence are significant in the prediction of students' likelihood to dropout of high school physical education. The data were gathered from the responses of 610 students enrolled in the Concepts class selected for use in this study. Due to missing data, 33 subjects were excluded from this study. Analyses were performed on the remaining 577 subjects. The total number of dropouts and stay-ins was found to be 334 (57.89%) and 243 (42.11%), respectively. Analyses were primarily conducted by using the General Linear Model Procedure (GLM) of the Statistical Analysis System (SAS) made available through the computing facilities at Kansas State University. This chapter contains the results and discussion of those data.

General Linear Model

The GLM is a type of regression procedure, appropriate for analyzing general linear models. However, one advantage of GLM compared to traditional regression procedures, is its ability to handle both classification variables as well as continuous variables. GLM also allows for an analysis of variance (ANOVA), even when unbalanced data is present as is the case in the present study.

Multidimensional Model

The GLM procedure revealed the full model (factors from the categories of individual attributes, high school environment, physical education environment and parental influence) is significant in accounting for the dependent variables' behavior. The F Value for the model was found to be

1.47 ($PF < .01$). The analysis of variance table with its specific numerical values is presented in Table 2.

Table 2

Analysis of Variance Table

<u>Source</u>	<u>Degrees of Freedom</u>	<u>Sum of Squares</u>	<u>Mean Square</u>	<u>F-Value</u>	<u>PR>F</u>
Full Model	211	63.7273	0.3020	1.47	0.0010
Error	306	62.6839	0.2049		
Total	517	126.4112			

The mean of the dependent variable was found to be 1.577 and the standard deviation was 0.453. The model accounted for 50.4% of the variance. The significance of the multidimensional model and its ability to account for more than 50% of the variance suggests factors related to "dropping out" have been identified.

Individual Variable Significance

Upon establishing overall significance, the next step was to determine the significance of each variable's contribution to the full model. The significance of each variable was determined through the utilization of a special "TYPE IV Sum of the Squares Test" (TYPE IV SS). This test collectively compares all the variables by determining their sum of squares due to adding each variable last in the model. Once the sum of squares is determined for a variable, its F Value and significance probability (PR>F) are calculated. The F Value and PR>F values are equivalent to the results of a t-test for testing the hypothesis that the parameter equals zero. If the PR>F is small, it indicates the variable is significant.

The results of the TYPE IV SS test revealed only two variables to be significant contributors to the model with a PR>F value of less than 0.05, athletic participation (PR>F of .0013) and school size (PR>F of 0.0207).

To determine which subclasses of subjects from the athletic participation and school size variables are likely to be dropouts, it was necessary to determine "least square means"; an explanation of the least square procedure is given later in this chapter (page 38).

Table 3 represents the F-values of the independent variables from the high school environment when entered last into the model.

Table 3

F Values for High School Environment Variables

Variable	F Values	PR > F
School size	2.09	.0207*
Athletic Participation	2.30	.0013*
Popularity based on good grades	.82	.4426
Popularity based on participation on sports teams	1.69	.1859
Popularity based on participation in student government	.70	.4981
Popularity based on people who date	1.22	.2960

*Significant < .05

Table 4 presents the variables from the physical education high school environment and their F values.

Table 4

F Values for Physical Education Environment Variables

Variable	F Values	PR > F
Years physical education was required	1.09	.3293
Average grade received	1.10	.3518
Conflict of perceived teacher & student class objectives	1.07	.3728
Objective of game to defeat opponent	1.23	.2943
Objective of game to play well	.34	.7120
Objective of game to play fair	.34	.7144
Dislike of dressing and undressing	.88	.4357
Dislike class too large	.53	.6694
Dislike of length of class period	.21	.8854
Dislike of competitive environment	.41	.7524
Dislike of class being coed	.36	.7876
Dislike of exposing skill level	1.54	.2017

None of these variables were found to be significant contributors to the model. Based upon evidence received from the TYPE IV SS, previous studies of physical education dropouts which primarily concentrated on individual factors from the physical education environment, have added little to our understanding of student likelihood to drop out of physical education. In summary, only school size and athletic participation were significant when added last to the model.

Prediction Capacity

The study's hypotheses were tested by the determination of the multidimensional model's predictive capacity. This was accomplished by obtaining parameter estimates for each subclass of the independent variables (Appendix C). These values were then used to predict the classification of each subject. Since a stay-in was denoted, a value of 1 and a dropout of 2, it was determined that the predicted value of 1.5 would be utilized as the cut-off point; a predicted value of less than 1.5 classified the subject as a stay-in and over 1.5 classified the subject as a dropout. If there were any missing values for an independent variable, that subject was not assigned a predicted value. To determine the capacity of the model for predicting dropouts, each subject's predicted value was compared to the observed value to decide if the classification was correctly classified. Table 5 presents the number and percentage of dropouts and stay-ins who were classified either correctly or incorrectly when predicted values were calculated using all the independent variables.

Table 5
Prediction Capacity Using all Independent Variables

Observed	Classified As Stay-ins	Classified As Dropouts	Total
Stay-in	173 79%*	46 21%	219
Dropout	28 9.4%	271 90.6%*	299
Total	201 38.8%	317 61.2%	518

*Correctly classified

As shown in Table 5, the multidimensional model is capable of predicting 90.6% of the dropouts correctly. It was then explored whether a more parsimonious model could be adopted. It was therefore necessary to determine a level of diminishing returns, predicted values for each subject were obtained from their response to the twelve independent variables best contributing to the model. The following variables in ascending order were included four at a time: athletic participation, school size, conflict of importance for physical activity, popularity based on participation in sports, the dislike of exposing skill level to classmates, self esteem, the game objective to defeat opponent, popularity based on people who date, role-modelling of father's participation, years physical education required, average grade received, and conflict of class objectives. Predicted values were calculated three separate times: 1) by using the four most important variables 2) by using the eight most important variables, and 3) by using all twelve independent variables named above. As indicated in Table 6 the percent of correctly classified dropouts using four, eight, and twelve variable models were found to be 78.5%, 82.6%, and 84.2%,

respectively. It therefore appears that the level of diminishing returns occurs with the eight variable model, since the twelve variable model only increases our predictive capabilities by 1.6%.

Table 6

Percent of Correctly Classified Dropouts and Stay-ins

Type of Model	Correctly Classified Stay-ins	Correctly Classified Dropouts
Four Variables - (athletic participation, school size, conflict of importance for physical activity, and popularity based on participation in sports)	61.5%	78.5%
Eight Variables - (athletic participation, school size, conflict of importance for physical activity, popularity based on participation in sports, dislike of exposing skill level to classmates, self esteem, game objective to defeat opponent, and popularity based on people who date)	69.0%	82.6%
Twelve Variables - (athletic participation, school size, conflict of importance for physical activity, popularity based on participation in sports, dislike of exposing skill level to classmates, self esteem, game objective to defeat opponent, popularity based on people who date, role-modelling of father's participation, years required, average grade, and conflict of class objectives)	77.4%	84.2%
Twenty-three Variables (full model)	79.0%	90.6%

The information presented in Table 6 reveals that the hypothesis-- conflict of perceived teacher and student class objectives would be the

single best predictor of dropping out, should be rejected. The evidence in support of this statement stems from the fact that conflict of perceived teacher and student class objectives is not contained in the four variable model, which is comprised of the four best predictors of dropping out. The hypothesis that the most significant variable from the individual attributes category would be self esteem was supported, since self esteem is the only independent variable from the individual attributes category that is one of the eight best predictors of dropping out. Although the hypothesis was supported, it must be kept in mind that self esteem was found to be nonsignificant when added last into the full model. Drawing upon information already presented in the individual variable significance section and Table 6, support was found for the hypothesis that the most significant variable from the high school environment would be athletic participation. Evidence which supports the hypothesis that conflict of importance for physical activity would be the most significant variable in the parental influence category can be observed in Table 6. Although conflict of importance for physical activities is one of the four best predictors of dropping out, it should be noted that the variable was found to be nonsignificant when added last to the full model.

Least Square Means

"Least square means (LSM's) are to unbalanced designs as class and subclass arithmetic means are to balanced designs. Simply put, they are estimates of the class or subclass arithmetic means that would be expected had equal subclass numbers been obtainable." (Goodnight, 1979).

Athletic Participation

Least square means were calculated for each subclass of the independent variable athletic participation. The LSM's, standard errors, and

percentage of dropouts for each subclass are presented in Table 7. An examination of the LSM's reveals that, overall, the general trend is a decrease in the percentage of dropouts as the number of seasons per sport increases.

Table 7
Least Square Means for Athletic Participation

	number of sports			
	0	1	2	3
Total Number of Seasons	1.899 .066 89.9%			
		1.999 .096 99.9%		
		1.798 .098 78.8%	1.59 .18 59%	
		1.783 .118 78.3%	1.676 .122 67.6%	1.534 .274 53.4%
		1.47 .13 47%	1.587 .12 58.7%	1.814 .274 81.4%
			1.626 .115 62.6%	1.97 .16 97%
			1.687 .13 68.7%	1.663 .133 66.3%
			1.42 .177 42%	1.567 .12 56.7%
			1.337 .134 37.7%	1.43 .123 43%
				1.447 .197 44.7%
				1.554 .119 55.4%
				1.261 .16 26.1%
				1.436 .118 43.6%

LS Mean
Standard Errors LSM
Percent Dropouts

The overall general negative relationship existing between the number of seasons per sport and dropping out can be readily interpreted from Table 7. It is somewhat more difficult to interpret the relationship between the same number of seasons for different numbers of sports and dropping out. That is, does a difference exist between the number of

dropouts for groups of subjects who participated in one sport for one season, two sports for one season in each, or three sports for one season in each? The relationship between these differences and the differences between subjects who participated for four seasons in different numbers of sports can be viewed graphically in Figure 5. Two and three seasons in different numbers of sports were eliminated from Figure 5, as it is impossible to determine if a subject who was assigned an athletic participation value of 306 (three sports for a total of six seasons) actually participated in either two seasons for each sport or any other combination of seasons totaling six.

Figure 5

Relationship Between One Season Per Sport and Four Seasons Per Sport

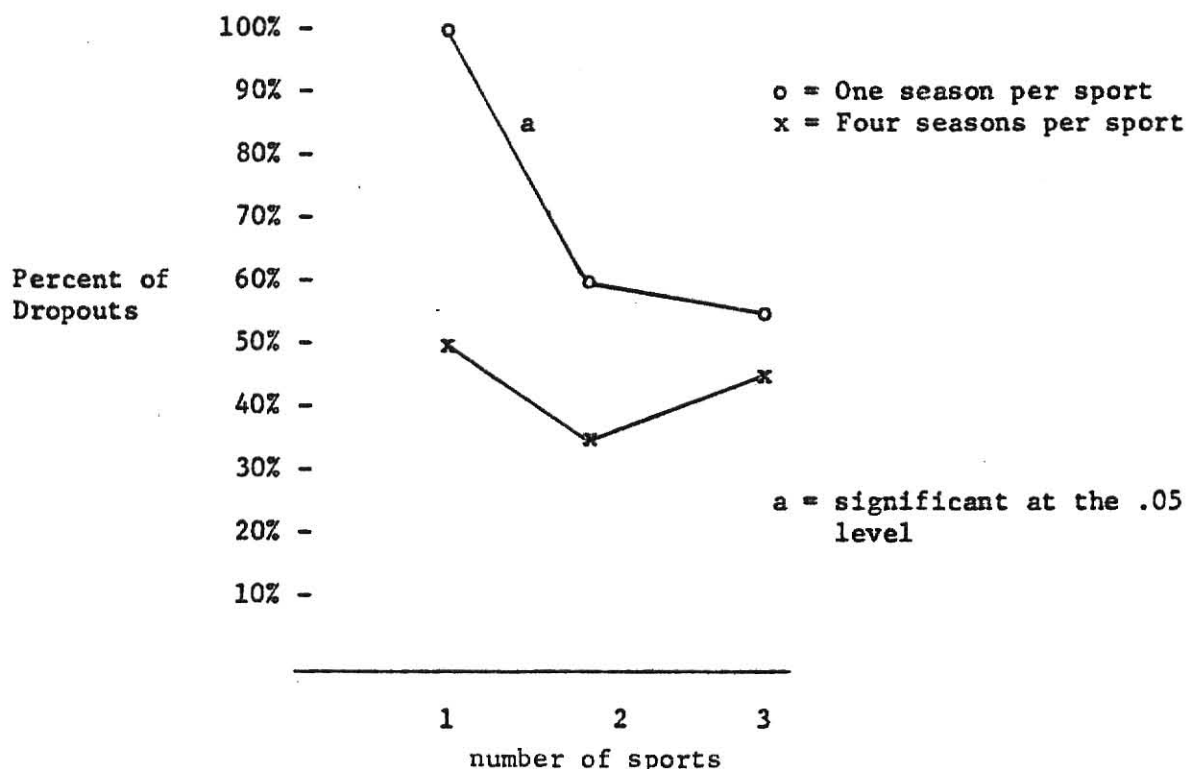


Figure 5 reveals that although the only significant difference appeared between participation in one sport for one season and two sports

for one season each, the general tendency is a decrease in the likelihood of dropping out of physical education the more seasons a person participated on a sports team. The only exception is the nonsignificant increase in the number of dropouts from two sports with eight seasons of participation to three sports with twelve seasons of participation. This finding combined with the discovery that a decrease in the percentage of dropouts results from an increase in the number of seasons supports the hypothesis that negative relationship exists between athletic participation and dropping out.

School Size

To test the hypothesis that a positive relationship exists between school size and dropping out of physical education, least square means were calculated for each subclass of school size. The LSM's, standard errors, and percentages of dropouts for each subclass of school size are presented in Table 8. By examining Table 8, it is apparent there is an overall tendency for dropout percentage to decrease in respect to increases in number of students in relation to the same community population. Significant differences were found to exist between analysis of 11 (less than 5,000 population/less than 130 students) and 13 (less than 5,000 population/over 421 students) $P < .05$, and 31 (over 20,000 population/less than 130 students) and 33 (over 20,000 population/over 421 students) $P < .05$. The only exceptions to this negative relationship exist between school sizes of 22 (over 5,000 population/over 131 students) and 23 (over 5,000 population/over 421 students), and between school sizes of 42 (over 50,000 population/over 131 students) and 43 (over 50,000 population/over 421 students). However, in both cases, the differences were found to be nonsignificant at the .05 level.

A further examination of Table 8 reveals that an overall general increase in dropout percentage occurs in schools with less than 130, and over 421 students as the community population increases. These increases were, however, found to be nonsignificant at the .05 level of significance. A slight overall decrease occurs in schools with numbers of students between 131-420, but this decrease was also found to be nonsignificant.

Table 8

Least Square Means for each Subclass of School Size
Population of Community

	LSM's Standard Error Dropout %	1	2	3	4
		Less than 5,000	(5,000- 20,000)	(20,000- 50,000)	(over 50,000)
Number of Students	1	1.741	1.604	1.904	1.927
	(Less than 130)	.072	.271	.239	.272
		74.1%	60.4%	90.4%	92.7%
	2	1.554	1.584	1.751	1.458
	(131-420)	.068	.09	.13	.135
		55.4%	58.4%	75.1%	45.8%
	3	1.274	1.59	1.437	1.566
	(421 and over)	.196	.082	.068	.065
		27.4%	59%	43.7%	56.6%

*School size values are classified as two-digit numbers. The first digit represents population of community and the second digit represents number of students.

Two possible explanations for the occurrence of dropouts in different school size exists. First, the larger schools offer a diversity of elective physical education classes where a non-athlete does not have to compete with an athlete for grades. Also different levels of classes are offered whereby an unskilled student does not have to participate with highly skilled students. The second explanation may be that students from rural communities are inclined to participate more in physical

activities than students from inner cities. This would explain why a large school in a small community was found to have a dropout percentage of approximately 27. A large school in a small community is typically a consolidated school (where many small schools are combined into one large school), these students are from rural settings and find themselves with a diversity of elective physical education classes to choose from and many of them do so.

Based on the results of analyzing the LSM's of school size, the hypothesis that a positive relationship would exist between school size and dropping out of physical education was rejected.

To procure evidence in support of the combination of number of students and community population to form the independent variable school size, and the combination of number of sports and total number of seasons to form the independent variable athletic participation, another GLM was run to determine the significance of variables not in combinations. The variable of number of students was found to be significant ($PR>F$ of .0028); however, community population was not ($PR>F$ of .2226). Evidence was shown that community population does affect dropouts when it is combined with the number of students. The same results appeared for the variables combined to form athletic participation. Just knowing if a subject was an athlete or the number of sports participated in was not significant in predicting dropouts, $PR>F$ values of .4569 and .3678, respectively. The number of seasons of participation in sports was found to be significant ($PR>F$ = .0141); however, this was not as significant as the combination of number of sports and number of seasons. Evidence shows the number of sports does have an effect on the decision to drop out when the number of seasons is a fixed value.

Present Activity Involvement

To test the hypothesis that dropouts will participate in physical activities now to a lesser extent than stay-ins, LSM's for both were calculated. It was found that dropouts participate approximately 147 minutes and stay-ins approximately 183 minutes per week in physical activities. This difference was found to be significant ($p = .0236$). The hypothesis was therefore supported.

General Descriptive Information

This section contains general descriptive information about the independent variables of sex, self esteem, popularity in high school, years required, average grade, game objectives, dislikes, conflict of class objectives, conflict of importance for physical activity, role modelling of mother's participation, and role-modelling of father's participation. All of the hypotheses associated with the above mentioned independent variables were tested using chi-square.

None of the variables from the physical education environment were found to be significant contributors to the model. Based upon the evidence received from the TYPE IV SS, previous studies of physical education environment, have added little to our understanding of student likelihood to drop out of physical education. In summary, only school size and athletic participation were significant when added last to the model.

Sex

The number of males and females who participated as subjects in this study was found to be 299 and 216 respectively. Sixty-two of the subjects neglected to indicate their sex on the questionnaire. It was found that 54.18% of the males and 63% of the females had dropped out of physical education. (Table presented in Appendix D).

These percentages were found to be nonsignificant ($\chi^2(d.f.=2) = 3.97$, $p > .05$). Therefore, the hypothesis that females would have the tendency to drop out more than males was rejected.

Self Esteem

Self esteem scores were categorized into the following: less than 20, 20 to 29, and 30 and above. Percentages of dropouts for subjects were found to be 56.7%, 59%, and 60%, respectively. (Table presented in Appendix E). These percentages were found to be nonsignificant. ($\chi^2(d.f.=2) = .181$, $p > .05$). The hypothesis that a negative relationship existed between self esteem and dropping out was rejected.

Popularity in High School

Sixty-nine percent of the subjects perceived students who participated on sports teams to be the most popular group at their high school. Of these subjects, 55% dropped out of physical education (Table presented in Appendix F). This nonsignificant finding ($\chi^2(d.f.=2) = .958$, $p > .05$) rejects the hypothesis that subjects who perceived popularity to be based on participation on sports teams would not have dropped out of physical education.

Average Grade

A negative relationship was found to exist between average grade received and dropping out. The data revealed that of the subjects who received a letter grade of A, B, or C, 48%, 72%, and 78%, respectively, dropped out (Table presented in Appendix G). These differences were found to be significant ($\chi^2(d.f. = 3) = 33.2$, $p < .0001$). The hypothesis was therefore accepted.

Game Objectives

Fifty-five percent of the subjects who perceived it most important to defeat the opponent as a game objective dropped out of physical education.

(Table presented in Appendix H). This rejects the hypothesis that they would have elected to participate in physical education ($\chi^2(d.f.=1) = .445$ $P > .05$).

Dislikes

The hypothesis that the most disliked aspect of physical education class would be dressing and undressing for class was supported ($\chi^2(d.f.=5)=252$ $P<.001$). Seventy-seven percent of the subjects considered it one of the three most disliked aspects of physical education; of these, 52% considered it the most disliked aspect. Over thirty-nine percent of all the subjects considered it the most disliked aspect of physical education class (Table presented in Appendix I).

Conflict of Class Objectives

The percentages of dropouts for the subclasses of zero, one, two, three and eight student class objectives the same as his perceived teacher class objective was found to be nonsignificant ($\chi^2(d.f.=4) = 3.44$ $p > .05$). The corresponding percentages were 58%, 56%, 60%, 51% and 63% (Table presented in Appendix J). This finding rejects the hypothesis that a positive relationship exists between conflicts of class objectives and dropping out.

Years Required

Over twenty percent of the cells for the independent variable years required contained less than five observations each; to adequately test the dropout percentages for each subclass using chi-square, it was necessary to total the number of years required before high school and number of years during high school into one value. The percentages of dropouts (Table presented in Appendix K) for each of the 13 subclasses of the

independent variable years required were found to be not significantly different ($\chi^2(d.f.=12) = 7.881$ $p > .05$). The hypothesis that a negative relationship would exist between years required and dropping out of physical education was therefore rejected.

Conflict of Importance for Physical Activity

Over twenty percent of the cells for the independent variable conflict of importance for physical activity contained less than five observations each, therefore, to adequately test the dropout percentages for each subclass using chi-square, it was necessary to examine the difference between students importance for physical activity and perceived parents importance for student to be physically active. The percentages of dropouts (Table presented in Appendix L) for each of the five subclasses were found to be not significantly different ($\chi^2(d.f.=4) = 5.889$ $p > .05$). The hypothesis that a positive relationship would exist was rejected.

Role-Modelling of Mother's Participation

Since over twenty percent of the cells contained less than five observations each, it was necessary to examine the difference between mother's participation in physical activities and student's participation with mother in physical activities. The percentages of dropouts (Table presented in Appendix M) for each subclass were found to be not significantly different ($\chi^2(d.f.=4) = 4.57$ $p > .05$). The hypothesis that a positive relationship would exist was therefore rejected.

Role Modelling of Father's Participation

Twenty percent of the cells for role-modelling of father's participation also contained less than five observations each; it was therefore necessary to examine the difference between father's participation in

physical activities and student's participation with father in physical activities. The percentages of dropouts (Table presented in Appendix N) for each subclass were found to be significantly different ($X^2(d.f.=4) = 11.376$ $p < .05$). Through an examination of the dropout percentages, a general, overall positive relationship exists. The hypothesis was therefore accepted.

Discussion

It seems apparent from the data analyses presented in this chapter that a multidimensional model is essential when examining factors which may influence a student's decision to drop out from physical education. Evidence in support of this contention stems from the fact that the model was found to be significant in accounting for the dependent variable's behavior; also, over fifty percent of the variance associated with elective class participation was attributable to the independent variable.

Although only athletic participation and school size were found to contribute significantly to the model, the combination of other factors assisted in the improvement of the capacity to predict dropouts. This was readily apparent when all the independent variables accurately predicted over ninety percent of the dropouts as opposed to the correct classification of seventy-eight and a half percent of the dropouts by the utilization of only athletic participation, school size, conflict of importance for physical activity, and popularity based on participation on sports teams.

The various subclasses of athletic participation and school size were found to have different effects on the decision to dropout of physical education, suggesting an interaction between athletic participation and school size. It was found that the more seasons a student participates on a sport team and the more sports teams he takes part in, the less

likely he will dropout of physical education. It therefore seems apparent that the more athletic a student is, the less likely he will dropout of physical education. This may be due to athletes possibly feeling a commitment to their high school and thus seek extracurricular activities in which to participate in. Evidence was found that revealed the larger the number of students in a high school and the smaller the community population, the more likely a student would elect to participate in physical education. Two possible explanations for this occurrence are: the diversity of elective physical education classes at the larger high schools, and secondly, students from rural settings may be more inclined to participate in physical activities than students from inner cities. These findings are clearly in need of theoretical interpretation. The role of school size thus needs to be more thoroughly examined in future studies.

With the exception of school size, athletic participation, grades, and role-modelling of father's participation, independent variable contributions to dropping out were not found. A negative relationship was found between average grade received and dropping out. This may be due to students who have found achievement in one class tend to enroll in other classes which are similar. A positive relationship was found between role-modelling of father's participation and dropping out. This relationship exists since the parents of the subjects utilized in this study are from the generation that socialized males into athletic participation, while at the same time frowning upon females that exhibited any sign of athletic capabilities. Therefore, fathers influence their children's attitudes and orientations towards sport and physical activity. This would explain why significant differences were found for role-modelling of father's participation, but no significant differences were found for role-modelling of mother's participation. Also, dropouts were found to

participate to a significantly lesser extent in physical activities now than stay-ins, perhaps indicating dropping out of high school physical education is a symptom of a noncommitment to life-long physical activity. Self esteem was found to not have significant differences between the percentages of dropouts for each of it's subclasses. This may be due to the fact that Rosenberg's Self Esteem Scale was designed to measure global self esteem. A person's global self esteem may be no indication of their specific sport or physical activity self esteem.

Through the analyses presented in this chapter, factors which have a significant effect on a student's decision to dropout of high school physical education have been located. It was beyond the scope of this study to explore just what affect these factors played on a student and how they may have caused him/her to dropout of physical education. Therefore, future studies need to be conducted to further explore why a student will not take an elective physical education class. If we as physical educators can determine this it may be possible to adequately analyze our programs and incorporate changes to meet the needs of more students. We need to find out why some students choose not to continue in physical education, not only because it is a reflection on our programs, but because this study found an indication that dropping out may be a symptom of a noncommitment to life-long physical activity.

CHAPTER V

SUMMARY AND CONCLUSIONS

Researchers in the physical education discipline have given very limited recognition to the problem of determining factors that affect a student's decision not to enroll in an elective physical education class during high school. Prior research in this field has focused primarily on personal attributes associated with factors contained solely in the physical education environment. The researchers neglected to examine social factors not contained in the physical education environment to determine if they were related to the student's decision to drop out of physical education. Therefore, it was necessary to construct a multidimensional model which contained the following categories: individual attributes, high school environment with special emphasis on the physical education environment and parental influence. These categories were selected in order to probe factors that might be related to student's dropping out of high school physical education.

The purpose of this study was to determine which variables were significant in predicting dropouts from physical education. The independent variables in the individual attributes category were: sex, self esteem and present activity involvement. For the high school environment, independent variables included school size, athletic participation and popularity in high school. The independent variables comprising the physical education environment category were years required, average grade, game objectives, dislikes and conflict of class objectives. The parental influence category's independent variables included the following: conflict of importance for physical activity, role-modelling of mother's participation and role-modelling of father's participation.

All students attending the first session of the spring semester, 1982, Concepts of Physical Education class at Kansas State University were asked to complete a short questionnaire. At the time the questionnaire was distributed, 610 students were enrolled in the concepts laboratory classes. Of these, usable data were gathered from the responses of 577 subjects. The total number of dropouts and stay-ins was found to be 334(57.89%) and 243(42.11%), respectively.

All data analyses were conducted through the use of the General Linear Models Procedure. First, an analysis of variance was performed to determine the significance of the model in accounting for the dependent variables' behavior. Secondly, the significance of each independent variable when entered last was determined through the use of the TYPE IV Sum of Squares Test. Following this, the prediction capacity of the model was examined. The least square means of athletic participation, school size and present activities involvement were also calculated to determine the effects of their subclasses on the decision to drop out of physical education. Finally, general descriptive information was presented to look at specific subclass differences.

The multidimensional model was found to be significant in accounting for the dependent variable's behavior (PR>F of .001). The percent of variation in the dependent variable which was attributable to the variables was relatively large ($R^2 = 50.4\%$).

Athletic participation was found to be the most significant variable (PR>F of .0013). School size was the only other variable found to be significant (PR>F of .0207). All other variables were found to be nonsignificant.

Parameter estimates for each subclass of the independent variables were proficient in predicting which students were dropouts. Over ninety percent of the dropouts were classified correctly when all the parameter estimates were utilized. A more parsimonious eight-variable model was also identified which correctly classified 82% of the dropouts.

A negative relationship was found to exist between athletic participation and dropping out. More specifically, the more seasons a student participates on a sport team and the more sports teams he takes part in, the less likely he will drop out of physical education. Evidence also revealed that the larger the number of students in a high school and the smaller the community population, the more likely the students will not drop out of physical education. Students who participated in an elective physical education class during high school were found to take part in physical activities now to a significantly greater extent than dropouts.

Simple chi-square analyses generally revealed no relationship between dropping out and the independent variables. The only exception was the significant difference found between a student who received an average letter grade of A and a student who received either a B or C. A negative relationship was found to exist.

Conclusions

The data analyses presented in Chapter Four allow the following conclusions to be made within the limitations of the study.

1. Athletic participation and school size are related to dropping out of physical education.
2. Athletes involved in many sports/seasons are less likely to drop out of physical education.
3. Students who attend large schools in rural settings are less likely to drop out of physical education.

4. Students who participated in an elective physical education class during high school spend a significantly greater amount of time involved in physical activities now than do dropouts.
5. Students who average a letter grade of A in physical education classes are more likely to enroll in an elective physical education class.
6. The utilization of a multidimensional model appears to be the most adequate design for studying high school physical education dropouts.

Recommendations

Some suggestions for future research in this area include:

1. Examine a general population of college bound and non-college bound high school students.
2. A longitudinal study examining causal relationships among school and social factors and the decision to drop out of physical education.
3. Include additional factors which may influence a student's decision to drop out that were not examined in this study.
4. Focus on the differences between rural and inner city school environments.
5. Determine if diversity of classes is a significant factor in the decision to enroll in an elective class.
6. Determine if the quality of high school physical education programs is related to the student's decision to drop out.
7. Examine the commitment to life-long physical activities of dropouts and stay-ins.

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APPENDICES

Appendix A
Questionnaire

HIGH SCHOOL PHYSICAL EDUCATION EXPERIENCES

We would like to find out more about you and your high school physical education experiences. There are no right or wrong answers; how you feel is important. These questions are being asked under the guidelines established by Kansas State University, and by answering them you will be helping to find answers to important questions. You are, however, not required to answer any of the questions. Also, if any questions make you feel uncomfortable, you may leave them blank. Your name is not requested in order that your answers will be completely private and no one will ever be able to know how you answered the questions.

Read each question and decide how you feel about it. In cases where you may feel undecided about your answer, try to put down your first impression. In other words, try not to leave any questions unanswered even though you may not always feel perfectly sure about them.

Sex: Male or Female

Father's Occupation _____

Mother's Occupation _____

Population of the city where your high school is located:

- a. Less than 5,000
- b. 5,000 - 20,000
- c. 20,000 - 50,000
- d. Over 50,000

Number of students in grades 9 - 12 in your high school:

- a. 1A-2A (Less than 130)
- b. 3A-4A (131 - 420)
- c. 5A-6A (421 and over)

In answering the following questions, consider high school as grades 9th through 12th. Also, keep in mind that a required class is one that you had to take in order to graduate from high school while an elective class is one that you just wanted to take for your own benefit. Please read each question and circle your answer.

1. How many years were you required to take physical education before high school? (Circle one) 0 1 2 3 4 5 6 7 8
2. How many years were you required to take physical education in high school? (Circle one) 0 1 2 3 4
3. What was the average grade you received in your high school required physical education class(es)? (Circle one) A B C D
4. Did you take an elective physical education class in high school? (Circle one) YES NO
5. Why do you participate in physical activities now?
 - a. to improve my health _____ minutes per week
 - b. for recreational purposes _____ minutes per week
 - c. do not participate in any

6. Did you participate in interscholastic athletics during high school?
(Circle one) Yes No

If yes, which ones:

_____ years participated
_____ years participated
_____ years participated

7. How important is it for you to be physically active? (Circle one)

a. Very Important
b. Somewhat Important
c. Important
d. Not Important
e. Definitely Not Important

8. How important is it to your parent(s) that you are physically active?
(Circle one)

a. Very Important
b. Somewhat Important
c. Important
d. Not Important
e. Definitely Not Important

9. How often do your parent(s) participate in physical activities?

(Check one for Mother and one for Father) Mother Father

a. Never _____
b. Once a year _____
c. Once a month _____
d. Once a week _____
e. More than once a week _____

10. During high school how often did you participate in physical activities with your parent(s)? (Check one for each)

Mother Father
a. Never _____
b. Once a Year _____
c. Once a Month _____
d. Once a week _____
e. More than once a week _____

In answering the following questions circle your answer and use this scale: SA=Strongly Agree A=Agree D=Disagree SD=Strongly Disagree

- | | | | | |
|---|----|---|---|----|
| 11. On the whole, I am satisfied with myself. | SA | A | D | SD |
| 12. At times I think I am no good at all. | SA | A | D | SD |
| 13. I feel that I have a number of good qualities. | SA | A | D | SD |
| 14. I am able to do things as well as most other people | SA | A | D | SD |
| 15. I feel I do not have much to be proud of. | SA | A | D | SD |
| 16. I certainly feel useless at times. | SA | A | D | SD |
| 17. I feel that I am a person of worth, at least on an equal plane with others. | SA | A | D | SD |

18. I wish I could have more respect for myself. SA A D SD
19. All in all, I am inclined to feel that I am a failure. SA A D SD
20. I take a positive attitude toward myself. SA A D SD

In answering the following questions, rank the items by placing a 1 by the most important, a 2 by the second most important, and a 3 by the third most important. These questions are asked in regards to your required physical education class in high school.

21. During class I wanted to:

_____ develop physical fitness
 _____ improve my physical skills
 _____ have fun
 _____ develop leadership
 _____ develop self confidence
 _____ work with others
 _____ make friends
 _____ play games

22. During class my teacher wanted us to learn how to:

_____ develop physical fitness
 _____ improve my physical skills
 _____ have fun
 _____ develop leadership
 _____ develop self confidence
 _____ work with others
 _____ make friends
 _____ play games

23. When I was playing a game in class I wanted to: (rank by giving a 1 to most important, a 2 to second most important, and a 3 to the third most important)

_____ defeat my opponent or other team
 _____ play as well as I could
 _____ play fairly (to play by the rules all of the time)

24. Some students are more popular at school than other students. Which of the following groups do you think were the most popular at your high school? (put a 1 by the most popular and a 2 by the second most popular)

_____ students who receive good grades
 _____ students who participate on sport teams
 _____ students who are active in student government
 _____ students who date a lot

25. Which of the following aspects of a physical education class do you dislike the most? (put a 1 by the most disliked, a 2 by the second most disliked, and a 3 by the third most disliked)

_____ dressing and undressing for class
 _____ class too large
 _____ length of class period
 _____ competitive environment
 _____ classes were coed
 _____ classmates could see my skill level

Appendix B
Informed Consent

INFORMED CONSENT

By signing this sheet you will be giving your consent to participate in this study. Your participation is based solely on completing a questionnaire. By completing the questionnaire you will be helping us to find answers to important questions about physical education classes. Any inquiries you may have about the study will be answered by the principal investigator, Mark Hartung. You are reminded that you can withdraw consent and participation at any time.

Appendix C
Parameter Estimates for each
Observation for Independent Variables

Appendix C

<u>Parameter</u>		<u>Estimate</u>	<u>Std Error of Estimate</u>
Intercept		2.0930	0.8281
Sex	1	0.0801	0.0863
	2	0.0288	0.0902
Size	11	0.1344	0.0977
	12	-0.0249	0.0897
	13	-0.3517	0.2403
	21	-0.0779	0.3288
	22	0.1769	0.1192
	23	-0.0466	0.0979
	31	0.1774	0.2850
	32	0.4668	0.1717
	33	-0.1409	0.0805
	41	0.1622	0.3620
	42	-0.0783	0.1843
Years Required	0	0.1666	0.6653
	1	-0.0503	0.2201
	2	-0.0159	0.4257
	3	-0.9534	0.6171
	4	0.5089	0.6699
	11	-0.0496	0.1795
	12	-0.0844	0.2402
	13	0.5259	0.6274
	14	0.0133	0.5229
	20	-0.2557	0.6260
	21	-0.0511	0.1486
	22	0.0595	0.1585
	23	-0.1170	0.2604
	24	0.2089	0.3278
	30	-0.2855	0.3379
	31	-0.0589	0.1685
	32	-0.1006	0.2064
	33	0.4881	0.4108
	34	0.6512	0.2934
	41	0.0516	0.1820
	42	0.0596	0.1754
	43	0.3664	0.4058
	44	-0.0385	0.3018
	51	0.1264	0.2476
	52	0.0072	0.2624
	53	0.7256	0.4004
	54	-0.1649	0.4901
	61	-0.3026	0.1844
	62	-0.1463	0.2737
	63	-0.0488	0.4095

<u>Parameter</u>		<u>Estimate</u>	<u>Std Error of Estimate</u>
	64	0.3591	0.5490
	70	0.9019	0.8964
	71	-0.1088	0.2110
	72	0.5229	0.2682
	73	-0.2412	0.4026
	74	-0.4566	0.5627
	80	0.7606	0.5842
	81	0.0557	0.1443
	82	0.1124	0.1436
	83	-0.1937	0.2743
Grade	1	-0.0371	0.2576
	2	0.1150	0.2566
	3	-0.1119	0.3051
Athletic Participation	0	0.3115	0.1304
	101	0.5183	0.1504
	102	0.3046	0.1558
	103	0.2429	0.1785
	104	-0.0705	0.1828
	202	-0.0753	0.2732
	203	0.0391	0.1804
	204	0.1120	0.1686
	205	0.2161	0.1635
	206	0.1988	0.1794
	207	-0.0466	0.2130
	208	-0.2190	0.1821
	303	0.0959	0.3660
	304	0.1414	0.3250
	305	0.4938	0.2141
	306	0.0708	0.1959
	307	-0.0148	0.1670
	308	-0.0496	0.1751
	309	-0.1102	0.1606
	310	0.1775	0.1707
	311	-0.2883	0.2114
Conflict of Importance	11	-0.5615	0.3943
	12	-0.5615	0.3870
	13	-0.7761	0.3890
	14	-0.7208	0.4001
	15	-0.3575	0.4308
	21	-0.5299	0.4320
	22	-0.6148	0.3885
	23	-0.5324	0.3893
	24	-0.8327	0.3935
	25	-0.9437	0.5252
	31	-0.1529	0.5635
	32	-0.4550	0.4207
	33	-0.5927	0.3875
	34	-0.5547	0.3870
	42	0.0880	0.6738
	43	-0.2738	0.5401
	44	-0.3568	0.4069

<u>Parameter</u>		<u>Estimate</u>	<u>Std of Error Estimate</u>
Role-Modelling Mother	11	-0.0899	0.1806
	12	-0.1620	0.2830
	13	-0.8582	0.9087
	14	-0.2751	0.7092
	21	0.0462	0.2013
	22	0.0304	0.2045
	23	-0.3251	0.2920
	24	-0.2737	0.5970
	31	-0.1148	0.1966
	32	0.1194	0.2062
	33	0.0532	0.1858
	34	-0.0277	0.4233
	35	-0.8030	0.9904
	41	-0.1377	0.1971
	42	0.2077	0.2009
	43	0.0588	0.1801
	44	0.2370	0.2669
	45	0.6341	0.4829
	51	-0.1858	0.1982
	52	0.0287	0.2096
	53	-0.1221	0.1890
	54	-0.0877	0.1958
Role-Modelling Father	11	0.2274	0.1560
	12	0.4813	0.4270
	13	1.0348	0.4857
	21	0.2178	0.1752
	22	-0.0334	0.1952
	23	0.3753	0.2276
	24	-0.3544	0.8228
	31	0.1625	0.1851
	32	0.1851	0.1651
	33	-0.0040	0.1506
	34	-0.0746	0.2786
	35	0.1932	0.5805
	41	0.3658	0.1798
	42	0.2438	0.2007
	43	-0.0090	0.1616
	44	0.2187	0.1714
	45	0.6187	0.8528
	51	0.4111	0.1831
Self Esteem	52	0.1683	0.1868
	53	0.1147	0.1532
	54	0.0491	0.1725
	10	-0.1277	0.5393
	11	-0.2411	0.5216
	12	-0.2993	0.5382
	13	-0.1414	0.5265
	14	-0.3666	0.5242
	15	-0.2207	0.5254

<u>Parameter</u>		<u>Estimate</u>	<u>Std Error of Estimate</u>
	16	-0.1787	0.5250
	17	-0.5673	0.5281
	18	-0.1890	0.5247
	19	-0.3282	0.5247
	20	-0.3718	0.5216
	21	-0.2166	0.5223
	22	-0.1751	0.5267
	23	-0.1346	0.5293
	24	-0.3221	0.5360
	25	-0.2141	0.5462
	26	-0.1364	0.5810
	27	-0.2991	0.6531
	28	0.3631	0.7723
	29	0.0266	0.7683
	31	0.0187	0.7330
	33	-0.6769	0.8679
	34	0.0203	0.7383
	39	-0.7707	0.7400
Conflict of Class Objectives	0	-0.0775	0.1528
	1	-0.0330	0.1293
	2	0.0554	0.1316
	3	-0.0752	0.1432
Game Defeat Opponent	1	-0.2406	0.4973
	2	-0.3777	0.4950
	3	-0.5140	0.5223
Game Play Well	0	-0.4340	0.6813
	1	-0.0087	0.2510
	2	0.1576	0.2021
Popularity Good Grades	0	-0.2694	0.3595
	1	-0.0853	0.3449
	2	-0.2734	0.4129
Game Play Fair	1	0.1459	0.2311
	2	0.0688	0.2070
Popularity Sports Teams	0	-0.0122	0.1518
	1	0.2911	0.1827
Popularity Student Government	0	0.1019	0.1361
	1	0.2346	0.1990
Popularity Dating	0	0.0883	0.1258
	1	0.2824	0.1855
Dislike Dressing	0	-0.0289	0.4595
	1	-0.0820	0.4716
	2	0.0958	0.4430
	3	-0.0451	0.5484
Dislike Class Too Large	0	0.1176	0.1217
	1	0.0751	0.1175
	2	0.1712	0.1406
Dislike Length of Class	0	-0.0631	0.1385
	1	-0.0012	0.1353
	2	-0.0190	0.1568

<u>Parameter</u>		<u>Estimate</u>	<u>Std Error of Estimate</u>
Dislike Competitive Environment	0	0.0215	0.1351
	1	-0.0423	0.1377
	2	0.0849	0.1515
Dislike Coed Classes	0	0.1067	0.1613
	1	0.0177	0.1821
Dislike Exposing Skill	0	-0.1788	0.1392
	1	-0.1780	0.1435
	2	-0.0092	0.1565

Appendix D
Percentages for Each
Subclass of the Independent
Variable Sex

TABLE OF ELECTIVE CLASS PARTICIPATION BY SEX

Frequency				
Percent				
Row Pct				
Col Pct	Male	Female	Unknown	Total
	137	80	26	243
	23.74	13.86	4.51	42.11
	56.38	32.92	10.70	
Stay-In	45.82	37.04	41.94	
	162	136	36	334
	28.08	23.57	6.24	57.89
	48.50	40.72	10.78	
Dropout	54.18	62.56	58.06	
TOTAL	299	216	62	577
	51.82	37.44	10.75	100.00

Appendix E
Percentages for Each Subclass
of the Independent Variable
Self Esteem

TABLE OF ELECTIVE CLASS PARTICIPATION BY

SELF ESTEEM

Frequency Percent	Less than 20	20-29	30 and above	Total
Stay-in	151 43.3%	90 41%	2 40%	243 42.19%
Dropout	198 56.7%	132 59%	3 60%	333 57.81%

Appendix F
Percentages for Each
Subclass of the Independent
Variable Popularity Based on
Participation on Sports Teams

TABLE OF ELECTIVE CLASS PARTICIPATION BY
POPULARITY BASED ON PARTICIPATION ON SPORTS TEAMS

Frequency Percent Row Pct Col Pct	Not Popular	Second Most Popular	Most Popular	Total
	15	48	179	242
	2.65	8.5	31.7	42.8
Stay-in	6.20	19.8	74.0	
	36.59	38.71	44.75	
	26	76	221	323
	4.6	13.4	39.1	57.2
Dropout	8.05	23.53	68.42	
	63.41	61.29	55.25	
TOTAL	41	124	400	
	8.15	22.53	69.32	

Appendix G
Percentages for each
Subclass of the Independent
Variable Average Grade

TABLE OF ELECTIVE CLASS PARTICIPATION BY GRADE

Frequency Percent Row Pct Col Pct	A	B	C	Unknown	TOTAL
	179	55	4	5	243
	31.02	9.53	0.69	0.87	42.11
Stay-in	73.66	22.63	1.65	2.06	
	51.73	27.78	22.22	33.33	
	167	143	14	10	334
	28.94	24.78	2.43	1.73	57.89
Dropout	50.00	42.81	4.19	2.99	
	48.27	72.22	77.78	66.67	
TOTAL	346	198	18	15	577
	59.97	34.32	3.12	2.60	100.00

Appendix H
Percentages for Each Subclass
of the Independent Variable Game
Objective to Defeat Opponent

TABLE OF ELECTIVE CLASS PARTICIPATION BY
GAME OBJECTIVE TO DEFEAT OPPONENT

Frequency Percent Row Pct Col Pct	Third Most Important	Second Most Important	Most Important	Total
	118	72	51	243
	20.45	12.48	8.84	42.11
Stay-In	48.56	29.63	20.99	
	37.70	51.43	45.13	
	195	68	62	334
	33.80	11.79	10.75	57.89
Dropout	58.38	20.36	18.56	
	62.30	48.57	54.87	

Appendix I
Percentages for Most Disliked Aspects
of Physical Education Class

TABLE OF ELECTIVE CLASS PARTICIPATION BY MOST DISLIKED ASPECT

Frequency Percent	Dressing and Undressing	Class too Large	Length of Class Period	Competitive Environment	Classes Exposing Were Coed	Skill Level
Stay-in	88 41.51%	53 50.96%	35 44.30%	19 29.23%	11 57.89%	12 22.64%
Dropout	124 58.49%	51 49.04%	44 55.7%	46 70.77%	8 42.11%	41 77.36%
TOTAL	212 39.8%	104 17.6%	79 12.9%	65 12.2%	19 7.6%	53 9.9%

Appendix J
Percentages for Each Subclass
of the Independent Variable
Conflict of Perceived Teacher
and Student Class Objectives

TABLE OF ELECTIVE CLASS PARTICIPATION BY
CONFLICT OF PERCEIVED TEACHER
AND STUDENT CLASS OBJECTIVES

Frequency Percent Row Pct Col Pct	0	1	2	3	8	TOTAL
	23	70	84	43	23	243
	3.99	12.13	14.56	7.45	3.99	42.11
Stay-in	9.47	28.81	34.57	17.70	9.47	
	41.82	43.75	39.62	49.43	36.51	
	32	90	128	44	40	334
	5.55	15.60	22.18	7.63	6.93	57.89
Dropout	9.58	26.95	38.32	13.17	11.98	
	58.18	56.25	60.38	50.57	63.49	
TOTAL	55	160	212	87	63	577
	9.53	27.73	36.74	15.08	10.92	100.00

Appendix K
Percentages for Each
Subclass of the Independent
Variable Years Required

TABLE OF ELECTIVE CLASS PARTICIPATION BY YEARS

Frequency Percent Row Pct Col Pct	0	1	2	3	4	5	6	Total
	0	8	14	29	35	21	12	243
	0.00	1.39	2.43	5.03	6.07	3.64	2.08	42.11
Stay-in	0.00	3.29	5.76	11.93	14.40	8.64	4.94	
	0.00	50.00	43.75	39.73	44.87	46.67	31.58	
	3	8	18	44	43	24	26	334
	0.52	1.39	3.12	7.63	7.45	4.16	4.51	57.89
Dropout	0.90	2.40	5.39	13.17	12.87	7.19	7.78	
	100.00	50.00	56.25	60.27	55.13	53.33	68.42	
TOTAL	3	16	32	73	78	45	38	577
	0.52	2.77	5.55	12.65	13.52	7.80	6.59	100.00

(CONTINUED)

Frequency Percent Row Pct Col Pct	7	8	9	10	11	12	Total
	15	15	49	31	4	10	243
	2.60	2.60	8.49	5.37	0.69	1.73	42.11
Stay-in	6.17	6.17	20.16	12.76	1.65	4.12	
	45.45	50.00	42.98	36.47	57.14	43.48	
	18	15	65	54	3	13	334
	3.12	2.60	11.27	9.36	0.52	2.25	57.89
Dropouts	5.39	4.49	19.46	16.17	0.90	3.89	
	54.55	50.00	57.02	63.53	42.86	56.52	
TOTAL	33	30	114	85	7	23	577
	5.72	5.20	19.76	14.73	1.21	3.99	100.00

Appendix L
Percentages for Each Subclass
of the Independent Variable
Conflict of Importance for
Physical Activity

TABLE OF ELECTIVE CLASS PARTICIPATION BY
CONFLICT OF IMPORTANCE FOR PHYSICAL ACTIVITY

Frequency Percent Row Pct Col Pct	0	1	2	3	4	Total
Stay-in	77	85	61	15	1	239
	13.51	14.91	10.70	2.63	0.18	41.93
	32.22	35.56	25.52	6.28	0.42	
	40.53	38.81	49.59	46.88	16.67	
Dropout	113	134	62	17	5	331
	19.82	23.51	10.88	2.98	0.88	58.07
	34.14	40.48	18.73	5.14	1.51	
	59.47	61.19	50.41	53.13	83.33	
TOTAL	190	219	123	32	6	570
	33.33	38.42	21.58	5.61	1.05	100.00

Appendix M
Percentages for Each Subclass
of the Independent Variable
Role-Modelling of Mother's
Participation

TABLE OF ELECTIVE CLASS PARTICIPATION BY
ROLE-MODELLING OF MOTHER'S PARTICIPATION

Frequency Percent Row Pct Col Pct	0	1	2	3	4	Total
	81	60	53	25	15	234
	14.49	10.73	9.48	4.47	2.68	41.86
Stay-in	34.62	25.64	22.65	10.68	6.41	
	37.85	40.54	50.00	43.86	44.12	
	133	88	53	32	19	325
	23.79	15.74	9.48	5.72	3.40	58.14
Dropout	40.92	27.08	16.31	9.85	5.85	
	62.15	59.46	50.00	56.14	55.88	
TOTAL	214	148	106	57	34	559
	38.28	26.48	18.96	10.20	6.08	100.00

APPENDIX N

Percentages for each Subclass
of the Independent Variable

Role-Modelling of Father's Participation

TABLE OF ELECTIVE CLASS PARTICIPATION BY
ROLE-MODELLING OF FATHER'S PARTICIPATION

Frequency Percent Row Pct Col Pct	0	1	2	3	4	Total
	90	75	47	15	10	237
	16.30	13.59	8.51	2.72	1.81	42.93
Stay-in	37.97	31.65	19.83	6.33	4.22	
	40.72	51.72	46.08	30.00	29.41	
	131	70	55	35	24	315
	23.73	12.68	9.96	6.34	4.35	57.07
Dropout	41.59	22.22	17.46	11.11	7.62	
	59.28	48.28	53.92	70.00	70.59	
TOTAL	221	145	102	50	34	552
	40.04	26.27	18.48	9.06	6.16	100.00

Social and School Environment as Determinants
of Dropping Out of High School Physical Education

by

Mark S. Hartung

B.A., Bethany College, 1980

AN ABSTRACT OF A MASTER'S THESIS

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requirements for the degree

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KANSAS STATE UNIVERSITY
Manhattan, KS

1982

ABSTRACT

The purpose of this study was to determine which variable factors are significant in predicting which students are likely to drop out of high school physical education following fulfillment of the degree requirement. Specifically, individual attributes, high school environment with special emphasis on the physical education environment, and parental influence were examined.

All students attending the first session of the spring semester, 1982, Concepts of Physical Education class at Kansas State University were asked to complete a questionnaire. At the time the questionnaire was distributed, 610 students were enrolled in the concepts laboratory classes. Of these, usable data were gathered from 577 subjects. The total number of dropouts and stay-ins was found to be 334 (57.89%) and 243 (42.11%), respectively.

All data analyses were conducted through the use of the General Linear Models Procedure. The multidimensional model was found to be significant in accounting for the dependent variable's behavior (PR)F of .001) with an R^2 value of 50.4%. Athletic participation and school size were the only independent variables found to be significant when entered last into the model. The full model was able to predict 90.6% of the dropouts. Further analyses revealed the more athletic a student is in terms of total number of sports and seasons involvement the less likely he/she will drop out of physical education. The optimal school size for participation in an elective physical education class was found to be a large school (over 421 students) in a small community (population less than 5,000). The difference between dropouts and stay-ins present activity involvement was found to be significant, where the stay-ins participate the most. A negative relationship was found to exist between average grade received in physical education and dropping out.