

The University of North Carolina
at Greensboro

JACKSON LIBRARY



ca
no. 1417

UNIVERSITY ARCHIVES

BUEDE, PATRICIA SUE. The Development of Guttman Scales Measuring Attitudes Toward Athletic Scholarships and Attitudes Toward Women in Sport. (1975)
Directed by: Dr. Pearl Berlin. Pp. 65

The purpose of this study was to develop two Guttman scales: one which measured attitudes toward athletic scholarships and a second which assessed attitudes toward women in sport. Subjects participating in the scale development numbered approximately 200; their ages ranged from 18 to 65. Those involved in the sequential administrations of the pilot tests were college students, high school students, and laypersons--shoppers at a nearby mall. Each pilot trial involved 20 to 30 subjects. Each subject responded to a given number of statements by circling her/his selected responses. In the early stages of development, there were five response categories, from most favorable to least favorable. As the study progressed subjects were required to be more decisive by narrowing choice of responses to two: agree or disagree.

Analysis utilized the SPSS Guttman Scalogram program and called for the development of a new data deck for each pilot trial. The following criteria were invoked in evaluating the statements: (a) correlation with every other statement, (b) coefficient of reproducibility, (c) coefficient of scalability, and (d) pass/fail tally. General semantic meanings of the statements were also considered by the researcher.

Following analysis, statements were revised, eliminated completely, or retained as presented. They were then readministered in a new trial and the same procedure repeated until an acceptable level of reproducibility and scalability (.9 and .5), respectively, were obtained for the Women in Sport scalogram. The Athletic Scholarship Scale was abandoned after the fifth trial. The research

concluded that: (a) attitudes toward athletic scholarships were non-scalable in accord with Guttman technique and (b) a 10-item Guttman scale assessing attitudes toward women in sport was successfully developed.

THE DEVELOPMENT OF GUTTMAN SCALES MEASURING
ATTITUDES TOWARD ATHLETIC SCHOLARSHIPS
AND ATTITUDES TOWARD WOMEN IN SPORT

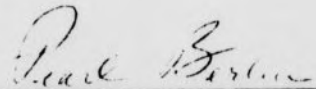
by

Patricia Sue Buede

A Thesis Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Master of Science in Physical Education

Greensboro
1975

Approved by



Thesis Adviser

APPROVAL PAGE

This thesis has been approved by the following committee of the Faculty
of the Graduate School at The University of North Carolina at Greensboro.

Thesis Adviser

Paul Berlin

Oral Examination
Committee Members

Greg M. Dennis

Kenneth M. Gee

David J. Prall

21 November 1975

Date of Examination

ACKNOWLEDGMENTS

The author wishes to express her deepest appreciation to the following people:

To my Dad, who will be forever within me.

To Jean Tuerck, whose patience and encouragement have influenced the writer's professional and personal ambitions.

II. REVIEW OF LITERATURE

Athletic Measurement: Gutman's Criteria	8
The Tinotique Scale Analysis	10
Classification of Scale Analysis	12
Scholarships in Higher Education	16
Athletic Scholarships	18
Approach to Future Practices in Women's Athletics	20
III. PROCEDURES AND ANALYSIS	22
Athletic Scholarships on Women's Sport Scale	22
Original Instrument Field	23
First Administration	25
Second Administration	26
Third Administration	27
Fourth Administration	28
Fifth Administration	29
Sixth Administration	29
Seventh Administration	31

TABLE OF CONTENTS

	Page
APPROVAL PAGE	ii
ACKNOWLEDGMENTS	iii
CHAPTER	
I. INTRODUCTION	1
Statement of the Problem	2
Definition of Terms.	3
Assumptions	5
Scope of the Study.	5
Significance of the Study	6
II. REVIEW OF LITERATURE	8
Attitude Measurement: Guttman's Criteria	8
The Technique: Scale Analysis	10
Criticisms of Scale Analysis	12
Scholarships in Higher Education	16
Athletic Scholarships	18
Antecedent to Present Practices in Women's Athletics	20
III. PROCEDURES AND ANALYSIS	23
Athletic Scholarships for Women in Sport Scale	23
Original Statement Pool	24
First Administration	25
Second Administration.	26
Third Administration	27
Fourth Administration.	28
Fifth Administration	28
Sixth Administration	29
Seventh Administration	31

TABLE OF CONTENTS (Continued)

	Page
Athletic Scholarship Scale	32
First Administration	34
Second Administration.	35
Third Administration	36
Fourth Administration.	37
Fifth Administration	41
Women in Sport Scale.	43
First Administration	44
Second Administration.	46
Third Administration	47
IV. SUMMARY, DISCUSSION, AND CONCLUSION.	49
Summary	49
Discussion	51
Conclusion	56
BIBLIOGRAPHY	58
APPENDIXES	62
APPENDIX A. Printout of Women in Sport Scale	62
APPENDIX B. Women in Sport Attitude Scale	65

CHAPTER I
INTRODUCTION

Words to the recently popular song state, "I am woman, hear me roar in numbers too big to ignore If I have to, I can do anything. I am strong, I am invincible, I am woman (Reddy, 1973)." Possibly no other single tune better suggests the mood, aspirations, and beliefs of serious-minded sportswomen. For in their efforts to expand opportunities for females to engage in sport, to give long overdue recognition for excellence in competitive athletics to deserving females, and to provide an education for capable females, the issue of the awarding of athletic scholarships has emerged. Long regarded by many persons as one of the critical practices in collegiate athletics, the question is appropriately asked by many leaders of women's sport, "What will be the effects of awarding athletics scholarships to women with athletic talent? What will be the role of athletic scholarships in the development of athletic programs for women?"

It is not possible to speculate with certainty the effects, over a period of time, of the awarding of athletic scholarships to women. Nor, in fact, have we definitive data about the possible outcomes of the overall increase in competitive athletic programs for females in educational institutions. At this point in time, however, some inferences might be made about what lies ahead in the development of women's sport programs if attitudes are validly assessed.

By developing two scales according to Guttman criteria, one scale concerned with women in sport and the other dealing with the issue of athletic scholarships, the investigator introduces an appropriate tool for measuring attitudes in the field of physical education. Guttman Scale Analysis is used extensively in other related fields, e.g., sociology and psychology. Data from these two scales are capable of contributing to knowledge of present attitudes about women in sport and athletic scholarships. Hopefully the application of knowledge derived from these scales will influence, to some degree, the specific course of development for new and expanding programs for women in sport.

Statement of the Problem

The goals toward which this study is directed are: (a) the development of a scale according to Guttman's criteria, which would measure attitudes toward athletic scholarships for high school girls and (b) to use the Guttman scale to assess the attitudes of high school administrators, female physical educators, and parents of high school female athletes toward the desirability of athletic scholarships for high school girls. This goal, however, was unrealistic. A revised effort was directed toward the development of two Guttman scales: one which would measure the attitudes toward women in sport and a second which would assess attitudes toward athletic scholarships. This report, then, is concerned with the above stated endeavor.

This inquiry seeks specifically to answer the following questions:

1. Is Guttman Scale Analysis a feasible strategy for assessing attitudes toward athletic scholarships? If so, how is such a scale formulated?

What is its contents? If not, why not?

2. Is Guttman Scale Analysis a feasible strategy for assessing attitudes toward women in sports? If so, how is such a scale formulated?

What is its contents? If not, why not?

Definition of Terms

For purposes of interpretation in this report, the following definitions are set forth.

Athletic scholarship--Money awarded to a student for educational expenses (tuition, room, and board) based on athletic participation in an inter-collegiate sport.

Attitude--"The degree of positive or negative affect associated with some psychological object (Thurstone, 1946)." A psychological object, according to Thurstone, refers to any symbol, phrase, slogan, person, institution, ideal, or idea toward which people can differ with respect to positive or negative affect.

Coefficient of reproducibility--A measure of the extent to which a respondent's scale score is a predictor of his response pattern. Mathematically, it is 1 minus the result of dividing the total number of errors by the total number of nonmissing responses and it varies from 0 to 1. A general guideline to the interpretation of this measure is that a coefficient of reproducibility higher than .9 is considered to indicate a valid scale (SPSS, 1975).

Coefficient of scalability--Obtained by dividing the percent improvement by the difference between one and the minimum marginal reproducibility. The

coefficient of scalability also varies from 0 to 1 and should be .5 or better if the scale is truly unidimensional and cumulative (SPSS, 1975).

Correlation coefficients--Each item is correlated with the sum of all other items and with every other item. This measure enables the researcher to identify items that are not positively related to the other items in the scale (SPSS, 1975).

Educational athletics--Competitive sports carried on as an integral part of a school program.

Minimum marginal reproducibility--Constitutes the minimum coefficient of reproducibility that could have occurred for the scale given the cutting points used and the proportion number of respondents passing and failing each item. It is calculated by summing the maximum marginals for each item and dividing this sum by the total number of responses (SPSS, 1975).

Percent improvement--The difference between the coefficient of reproducibility and the minimum marginal reproducibility. It indicates the extent to which the former is due to response pattern rather than the inherent cumulative interrelation of the variables used. Actually, it is the difference in two percents rather than a ratio itself (SPSS, 1975).

Scale analysis--A technique devised by Guttman for the quantitative assessment of any universe of qualitative data.

Assumptions

Inherent in this study is the assumption that the positive and/or negative affect an individual associates with women in sport and athletic scholarships is truly a measurable phenomenon. Further, the effort to apply Guttman scalogram analysis to such measurement supposes that the universe of content of the phenomenon to be assessed is both defined and scalable. Beyond that, Guttman's technique assumes that if the entire universe under question is scalable then any sample of questions must also be scalable regardless of how they are chosen (Stouffer, 1966).

Underlying this investigation is still another major assumption, namely, that during the pilot efforts to formulate the scales, subjects were giving honest responses to the statements posed by the investigator.

Scope of the Study

The boundaries of this research are established by the following:

1. The competitive athletic experiences and study of athletics by the investigator influenced the development of the scale statements.
2. The experiences of the subjects with respect to the phenomena under study are manifested in their ability to make a reasoned judgment about each statement. Such factors as the subject's age, sex, educational background, the geographic region in which they live, and their sport experiences, influences the tendency to respond either positively or negatively when making a judgment about the statement.

Significance of the Study

Opportunities for participation in athletics are more extensive for girls and women today in the U. S. than any other time in the history of sport in this country. The mood of society is setting the stage for this chance by beginning to accept a lifestyle which includes positive attitudes toward sports for women. Legislation (Title IX of the Education Amendments of 1972) is demanding comparable funding for functional operation of competitive athletics for girls and boys. This is forcing decisions to be made about the future of educational-based sport experiences for girls and women. Athletic scholarships pose just one problem at this time. Women sport leaders are in the need of data to guide them in program development and management.

Scalograms are considered capable of contributing to the knowledge held about attitudes toward women in sport. The results obtained from the use of the scales may yield the necessary information for women sport leaders to build a foundation for a model of athletic competition for girls and women. Through this study, the investigator hopes to be able to make some conclusions about the states of attitudes prevalent today toward athletic scholarships and women in sport.

Scalograms are suited for procuring such information quickly and efficiently. A scale contains ten statements with two response categories, agree or disagree. Other attitude measuring devices (Likert and Thurstone), may be anywhere from one to three pages in length and require different degrees of response. This is very time consuming. Through the investigator's pilot studies, she

found the average time for responding to the statements to be approximately 5-7 minutes.

The use of Guttman's scales in physical education has been extremely minimal. Therefore, this research is suggesting to the profession a respected approach to attitude study. It is providing the instrument to meet the critical needs on which decisions regarding women's sports can be made.

CHAPTER II
REVIEW OF LITERATURE

Attitude Measurement: Guttman's Criteria

World War II influenced the testing practices associated with the measurement of attitudes. The effects of the war caused changes in both the nature and the amount of testing. The development of particular types of tests and their use was increased; this in turn increased the interest to further apply such test techniques. Overall, the war was considered to have provided better tests.

Four major tenets of World War II which affected testing procedures were described by Segel (1944):

1. The great amount of mechanical equipment that was used required more care and more specialized personnel to maintain it. Therefore, the placement of men in jobs that they could effectively fill became very important.
2. There was a need for instruments to properly place returning soldiers and others in school.
3. The great number of exhaustion cases that occurred showed a need for a better method of selection of men in regard to their various stability.
4. After the war, the conversion to peace industries further increased the use of prognostic and performance tests in industry.

In 1940, just before the war, Guttman contributed to a series of studies about the logic of measurement and prediction. This was presented in a monograph published by the Social Science Research Council in 1945. The work contained the basic ideas which he and his colleagues, at the Research Branch of the Information and Education Division of the War Department, applied a year later in the development of a new technique for analyzing qualitative data concerned with attitude and public opinion measurement. They called it scale analysis.

According to Guttman, an attitude scale is a device for determining whether a person is higher or lower, more favorable or less favorable, than other persons with regard to a single issue. In a sense, it is similar to a yardstick whereby the heights of people are measured. During this time attitude scales are able to measure the attitudes of persons with the exactness of a yardstick (Ford, 1950). The main purpose of scale analysis is to test the hypothesis that a universe of qualitative items can be represented by a quantitative variable. In order for the universe to be represented exactly by a quantitative variable, each item must be a perfect function of that variable (Guttman, 1947).

A basic concept of the theory of scales is the notion that there is a universe of attributes which have a common content. By investigating the universe, such content can be ordered in such a way that selected items, representing the universe, are organized hierarchically. Hence, there is assurance that if a person ranks higher than another person in a sample of items, he will rank higher in the universe of items (Guttman, 1944). Thus, Guttman scale can be likened to the yardstick, i.e., it seeks to determine more or less, in sequential

order, the phenomenon being measured.

The Technique: Scale Analysis

Guttman (1947) considers that scale analysis can contribute to the solution of crucial problems of attitude and opinion research. One such problem concerns the structure of an attitude or opinion. Within the structure of an attitude the following question is raised: "Is there a consistency of response among the population of people which makes it meaningful to say that some are higher and some are lower in their position?" Scale analysis (Guttman, 1944) provides a test of such consistency. By regarding any question or statement asked in a survey as but a sample of all questions or statements that might be asked, scale analysis affords both theory and techniques for analyzing the structure of a universe of content to determine if it is unidimensional.

If the universe of content of an attitude or opinion is scalable then a second problem follows: is there a dividing point which will separate people with attitudes so that all of those who are above it are described as having a positive attitude and all those below the point can be described as negative? A solution to this problem of obtaining an internally unbiased cutting point for dividing the population into pro and con is explained by Guttman and Suchman, 1947. They explain theoretically and experimentally, that by using the intensity function technique, a zero-point is obtained which does not depend upon the particular wording of the statements used in the survey. No longer need one worry about the "bias" of wording, provided that a definitive content is used. The U- and J-shaped curve which results from relating intensity to content provides an objective

definition of the zero-point and divides the population appropriately into those who are positive and those who are negative in a manner that can not be influenced by the investigator's choice of statements or wording of statements. The intensity curve also reveals information about the structure of the attitude or opinion by showing whether or not the positive people are more intense or less intense than the negative people and whether a large proportion or a small proportion of the population is relatively indifferent.

Edwards (1948) expresses concern about the difficulty of locating the cutting points for various items. He discusses Guttman's analysis of the "A Nation of Nations" test, where the cutting points are misplaced and fall within a given score interval. In order to assume a higher degree of objectivity for scale analysis, Edwards urges the clarification of local cutting points and for the computation of the coefficient of reproducibility.

It is Guttman's contention that if cutting points are to be rigidly defined, then they must fall between scores. Only in this way does the coefficient of reproducibility measure the degree to which it is possible to reproduce item responses from rank-ordered scores; this occurs therefore, only if the cutting points fall between scores.

In 1947 Festinger reviewed the published literature with reference to the theory of "scale analysis," techniques of scale construction using scale analysis and evaluation, and interpretation of the scales achieved in this method. One way to determine the existence of unidimensionality is by the concept of reproducibility. Festinger criticizes the reproducibility coefficients for their

inadequacy to measure reproducibility.

It is clear that applying a criterion like 85% or 90% reproducibility to all attempts at scaling irrespective of the number of items involved or the number of possible answers to each item, leads to false conclusions (p. 158).

Festinger alleges that unidimensionality can not exist in connection with measuring instruments constructed by social scientists. "It would appear futile to insist upon unidimensional scales or to make much of a distinction between scales which possess different 'degrees of unidimensionality' . . . (p. 159)." But he does agree that "scale analysis provides a good technique for scale construction and a means for determining quantitatively the extent to which one's data departs from the ideal of unidimensionality (p. 159)."

Guttman (1947) recognizes the inadequacy of the reproducibility coefficient at the outset. Reproducibility by itself is not a sufficient test of scale unidimensionality. According to Guttman there are three other features that must be taken into account: (a) range of marginals, (b) random scatter of errors, and (c) numbers of items in the scale sample.

Criticisms of Scale Analysis

Clark and Kriedt (1948) apply Guttman's scaling technique to a conventional attitude scale measuring the economic liberalism-conservatism continuum. The Rundist-Sletto Scale of Economic Conservatism was selected because it had already been subjected to an accepted method of attitude scale refinement, the Likert Technique. They encounter difficulties almost immediately. The process of assigning cutting points, according to Guttman's method for computing

reproducibilities, is difficult and arbitrary. While each of several sets of cutting points gives equal percent reproducibilities, some sets hold out greater promise than others for improved reproducibility when item responses were combined. Clark and Kriedt were unsuccessful with Guttman's method. They concluded that the Rundist-Sletto Scale of Economic Conservatism does not possess unidimensionality; therefore, it should not be used to obtain a single score which would reflect an individual's position on a liberalism-conservatism continuum.

On the basis of their experience Clark and Kriedt claim that Guttman's method has several flaws. They are: (a) cutting points cannot be precisely determined, (b) the selection of 90% reproducibility as the criterion of scale unidimensionality is extremely misleading, and (c) Guttman's method of estimating reproducibility is designed to maximize the statistic obtained, capitalizing on chance error. Yet, both authors conclude that Guttman's methods of scale analysis could ultimately be valuable but at the time of their use of scale analysis, the technique was crude and not ready for widespread use.

It is established by Edwards and Kilpatrick (1948) that despite a certain lack of methodological precision scale analysis does provide a means of evaluating the unidimensionality of a set of items. If the criteria for unidimensionality is met, the interpretation of rank-order scores is unambiguous and efficiency of prediction from the set of items is maximized. But the Guttman technique provides no satisfactory means of selecting the original set of items for scale analysis. Edwards and Kilpatrick prefer that the selection of items be done by

the scale discrimination method which places the initial selection of the items to be tested for scalability on an objective basis thus removing it from the realm of a priori judgment or intuition. A procedure of combining the Likert and Thurstone methods to yield a highly scalable set of items is outlined in the above discussion. Two sets of 14 items are selected and tested. Both sets yield very satisfactory scalability.

Guttman (1947) indicates that the process for sampling questions is not a random one, but rather "a psychological process undergone by the research worker which thus far, has little analytical theory behind it (p. 59)." He asserts that it does not matter which particular set of questions are used if they were scalable, then the inference could be made, that the universe is scalable.

Lazarsfeld (1954) challenges the rank order concept of scale analysis. First, he defines rank order. According to Lazarsfeld rank order merely indicates that some people are more favorably inclined and others are less favorably inclined toward the phenomena under inquiry. Lazarsfeld questions how favorable must a person be to have a positive attitude and how much less favorable must another be to have a negative attitude. In other words, does a point actually exist on the percentile continuum such that all people who rank to the right of the point could be said to represent a positive attitude and all who rank left of the point have a negative attitude?

From Lazarsfeld's point of view, to attempt to define such a zero point by an observed item from the universe of content is a dangerous procedure. There is little argument among social scientists as to which alternative sets of

instructions to use. The reason is that rules established on an intuitive basis are no sounder than not having rules and trying to decide by a separate intuitive procedure for each research project individually. Lazarsfeld concludes by saying there can be no removing of disagreements about "bias" unless one can formulate an objective procedure for determining a zero point on the attitude continuum.

Menzel (1953) demonstrates that some success in reproduction is inevitable even in total absence of scalability. He states that the coefficient of reproducibility is a joint result of (a) an extremeness of items, (b) an extremeness of the individual, and (c) the scalability of items for given individuals, not an accurate measure of scalability alone. Menzel describes a formula which corrects the reproducibility error and provides a more accurate measure.

The purpose of Schuessler's presentation (1961) is to demonstrate that Guttman scalograms may be statistically interpreted and that such interpretations have a bearing on the decision to accept the hypothesis that the items do, in fact, constitute a scale. While the Guttman hypothesis of perfect scalability is statistically untestable, it is possible to determine whether the observed representation of responses might have arisen by chance. The methods proposed by Schuessler enable the investigator to approach her/his scale findings within the framework of statistical inference.

Two experimental studies are reported by Hayes in 1964 utilizing Guttman scale technique. The studies are concerned with (1) the balance theory and (2) figure-ground relations. The results indicated that an individual's responses

to certain Guttman scales may be statistically manipulated by item rearrangement.

Clayton (1973) presents a systematic paradigm of possible sources of error in usage of Guttman scales. Six major sources of bias are: (a) item-selection procedures, (b) structure of items, (c) sample used to test scale, (d) administration of research instrument, (e) preprocessing stage of analysis, and (f) assessment of internal consistency. The author asserts that Guttman scaling does have drawbacks but if the appropriate steps are taken to avoid all or most of the sources of bias then the researcher using Guttman scales can, with some degree of certainty, unambiguously place the individuals in his study on an ordinal scale of measurement.

In summary, it seems reasonable to generalize that in spite of the prevailing methodological criticisms of Guttman scaling his technique is still one of the most widely used procedures in sociological research which uses scales.

Scholarships in Higher Education

Literature about scholarships in higher education is both sparse and open to highly arbitrary interpretation. A review of available sources fails to provide a sense of understanding of the current issue.

Denny and Buscher (1969) discuss the misconception about sums of money going unused by potential college students every year. If this were the case one need not worry about college financing. The authors point out that nothing could be further from the truth. More college students today need help. Denny and Buscher argue that most scholarship money is not used to help make

college education possible for students who would otherwise not go, but to attract a student to a specific college that wants her/him. If one carefully examines the requirements for "winning" a scholarship, one can deduce that these requirements are extremely difficult to fulfill except by the most talented student.

A study by Bergen, Upham, and Bergen (1970) investigates students who receive scholarships to see what effects this had on their motivation and persistence toward graduation. It also compares the rate of progress of the recipient to like students who did not receive scholarships. Two trends discernible in their results are (1) that scholarship recipients in each class achieved a higher grade point average than the preceding class and (2) the recipients do better with the matching of nonscholarship students with each succeeding class.

Sherron (1970) investigates the relationships and differences among selected personality, demographic, and intellectual variables to determine the practicability of their use of predictors and criteria of academic and nonacademic achievements. The results of this study show a significant relationship between high school nonacademic achievements and (a) Opinion, Attitude, and Interest Survey (OAIS) scores, (b) high school rank in class, and (c) Scholastic Aptitude Test (SAT) scores. Traditionally, success in college has been defined in terms of academic achievements. In Sherron's opinion, college success should include not only academic accomplishments but nonacademic achievements as well. Another argument set forth by Sherron was that one should, in the interest of social and human values, also be concerned in finding students who will do outstanding things outside the classroom and in later life.

Some educators consider college recruitment to be an important phase in the developing process of education. Too many times, though, it is merely a self-contained procedure of screening candidates who happen to apply to a given college. Trent's (1965) findings indicate that the socioeconomic status of the student is the main determinant of her/his entry into college. The factors studied by Trent related to the student's attendance, attrition, her/his expectations, and personal development in college. Persistence through graduation is influenced by one's family, personal academic motivation, and one's attitudinal disposition. Another interesting finding is that students based their choice of college on its proximity, peer popularity, and the college's prestige.

Athletic Scholarships

A review of literature about athletic scholarships reveals an even greater neglect of systematic investigation on the subject. Howe, in Shea's and Wieman's book, Administrative Policies for Intercollegiate Athletics, states that an athletic scholarship represents payment in cash or in kind, e.g., tuition, room, and board, to a student with no special academic qualifications (except in most instances, ability to meet minimum entrance requirements) on the condition that s/he participate in intercollegiate athletics.

Two conditions of athletic scholarships are: (a) the amount of aid may bear no necessary relationship to the maximum permissible under conference and/or athletic association rules and (b) the award may be withdrawn, regardless of other conditions, if the athlete fails to make the squad or for any other reason, ceases to play. According to Howe, an athletic scholarship is simply payment

for one's athletic performance.

In the DGWS (Division of Girls and Women's Sport) Softball Guide of 1966-68, it is stated as one of the organization's standards that "participation by many is favored rather than by the few who are experts (p. 138)." In secondary schools and in colleges and universities, emphasis should be placed on the intramural program. An extramural program may be extended only after an intramural program affords opportunities for all girls to participate. The results of competition, whether intramural or extramural, should be judged in terms of benefits to the participants rather than by winning of championships, or the athletic or commercial advantage to schools or organizations. No player during this time is allowed to participate in more than one full-length game or match in one day of organized competition. Only one "highly competitive" game is to be scheduled per week. Under no circumstance is a player permitted to receive any type of money or financial reward for her participation in sport.

The above standards are a few from those adopted by DGWS in the 1950's and 1960's. In the spring of 1973 DGWS revised their philosophical statement on financial aid for athletes. This revision is due to the fact that it is illegal for DGWS to deny financial aid to women athletes when men in the same institutions are receiving athletic scholarships. Although DGWS deplored the awarding of athletic scholarships, they adopted interim regulations for those colleges that found it necessary to offer athletic scholarships to women athletes.

The interim regulations (Update, 1973) allows institutions to award financial aid to women athletes through the appropriate aid office. A visit to the

potential college by a prospective student could not be subsidized. AIAW's philosophy on recruitment is that such practices "impose undesirable pressures on prospective students and may result in unwise expenditure of money and its staff time (p. 11)."

AIAW's (Association for Intercollegiate Athletics for Women) philosophy remains basically the same as in 1973. Pertaining to recruiting and awarding of financial aid it is still believed that students should be free to choose the institution on the basis of the curriculum and program. Staff time should be devoted to the comprehensive program rather than to recruiting efforts. But AIAW has developed regulations, for the awarding of financial aid, to such a degree that it takes 10 pages in the 1974-75 handbook to cover them all. Explanations, limitations, and other restrictions for awarding such aid to women athletes are specifically defined within these 10 pages.

Antecedent to Present Practices in Women's Athletics

Women's part in competitive sport has a long history. However, few studies have been conducted pertaining to various aspects of athletic competition for girls and women. The trend toward the acceptance of athletic competition for girls and women in our present day society is substantiated by the findings of the following studies.

Leyhe's survey in 1955 determined the attitudes of women members of the American Association for Health, Physical Education, and Recreation toward competition in sports for girls and women. The study reveals division among women physical educators over the question of intensive athletic competition for

girls and women. Data from recreation workers tended to be more favorable in attitude than physical educators. The study also shows a more favorable view toward competition in individual sports, but far less favorable toward competition in team sports.

In 1956, McGee investigated the attitudes of administrators, teachers, and parents in certain communities in Iowa and Illinois toward intensive competition for high school girls. The attitude scale utilized was an adaptation of the Thurstone and Likert techniques of scale construction. Findings are that a majority of the population had favorable attitudes toward athletic competition for high school girls. Parents and coaches are most favorable and administrators and other school personnel least favorable.

The purpose of Harres' (1968) study was to ascertain the attitudes of women and men undergraduate students, concerning the desirability of intensive competition for girls and women. Her results show that the population is favorable, though not highly favorable, in attitude toward the desirability of competition and that participation in athletic competition did have a part in the formation of a more favorable attitude. No significant difference between the attitudes of men and women concerning the desirability was found.

Sheriff (1969) studied the status of female athletes as viewed by selected peers and parents. She reports in her findings that 65% of the total sample are undecided about female athletic competition. Ninety-five percent of the population indicate that females should be given the opportunity to participate in athletics but that undesirable qualities are brought out by intensive competition.

Concern about attitudes toward softball players led Garman (1969) to investigate opinions of female athletes as they are held by players, spectators, and the general public. The results indicate that all groups have favorable attitudes toward competition. Players and spectators are slightly more favorable than the general public. Individual sports are designated as being more appropriate for women's competition than team sports.

Gerber states in a presentation (1974) on The Changing Role of Women in Sports, that "the changing role of women in sports is a function of the changing role of women in American society (p. 1)." Gerber discusses three areas that are connected to sport and the changing role of women. They are (a) the stereotype of womanhood, (b) the social position of women, and (c) the legal status of women. Given these three areas, one can perceive that the image of women is changing and "there is no longer any logic to the argument that sports are unfeminine, that sports are unimportant to women's lives, that women are less deserving than men are of support for sport endeavors (p. 19)."

The tremendous growth of women's sport programs stems from the changing attitude toward the development of women's new roles in sport. The utilization of Guttman's scalogram will provide for the profession a simple and efficient means for measuring such a change.

CHAPTER III
PROCEDURES AND ANALYSIS

Athletic Scholarships for Women in Sport Scale

The emergence and recognition of the American woman in sport is somewhat analogous to the idea of the development of selfhood in women in the culture at large. That is to say, the full realization of women's sport potential has been limited by psychological misconceptions, societal-derived definitions, sex-role stereotyping, and other aspects of unequal opportunity. Recent events intended to equalize opportunity, particularly legislation designed to eliminate sex discrimination in public education, is expected to influence competitive athletic programs for girls and women in schools. How changing sport experiences are likely to be accepted is still somewhat uncertain. The extent to which such acceptance or rejection occurs, has strong implications for sport leaders who guide program development. In conceptualizing the present study, the writer considered attitudes toward women and sport as offering some possible insights into the issue. But in order to determine attitudes, the formulation of a valid measuring instrument became a prior necessity. Specific procedures followed in the development of such a tool are described in this chapter.

At the outset of this research, the attempt was made to develop a Guttman scale capable of measuring attitudes toward athletic scholarships for women. The controversy and effects of scholarships, it was presumed, would be a telling

factor about the acceptance of the sportswoman. In the original design, it was planned that the scale would be administered to groups of individuals associated with high school competition, the level at which athletes would be recruited.

Original Statement Pool

Based on literature about athletic scholarships, the researcher's knowledge and prior experiences with the phenomenon, and what could be discerned as current trends with respect to athletic scholarships, an initial pool of attitude statements was developed. Included were:

1. Athletic scholarships could give many girls a chance to further their education.
2. The competencies of women competitors could be improved as a result of providing athletic scholarships.
3. I would be proud of a daughter of mine who was an outstanding sports competitor if she were awarded an athletic scholarship.
4. Girls who are highly skilled in sports should be given the opportunity to receive an athletic scholarship.
5. Girls should have comparable opportunities as boys to compete for athletic scholarships.
6. Questionable recruiting practices may develop from offering of athletic scholarships.
7. Athletic scholarships are valuable for girls and women.
8. More opportunities for athletic scholarships should be available to high school girls.

9. Athletic scholarships provide challenges which highly skilled players need.
10. A female athlete on a scholarship is pressured to perform at a certain level.
11. The intensity of competition among subsidized women athletes could be undesirable.
12. Athletic scholarships for female athletes may lower their academic accomplishments.
13. Athletic scholarships for girls would take the "fun" out of competition.
14. Athletic scholarships distinguish outstanding athletic ability.
15. If scholarships are appropriate recognition for specific intellectual abilities they are also appropriate for specific athletic abilities.

First Administration, Analysis, and
Statement Revision

The first 13 statements specified above were subjected to evaluation by 20 students, female and male, freshmen through senior grade level, at Ben L. Smith High School in Greensboro, North Carolina. Ten other students, freshmen, women and men, at Randolph Technical Institute in Asheboro, North Carolina, also responded to the questions. Each of the thirteen statements had five response categories: (a) strongly agree, (b) agree, (c) undecided, (d) disagree, and (e) strongly disagree. By using five response categories the investigator could estimate the relative strength of each statement. Such a discrimination

could assist in ascertaining its possible placement in a Guttman hierarchy. The responses were coded, keypunched, and put through the SPSS Guttman scale program on the computer.

Utilizing the University of North Carolina at Greensboro's Computing Center, analysis of the responses were made. The Statistical Package for the Social Sciences (SPSS) program entitled Guttman Scalogram was run. On the basis of reported coefficients of reproducibility and scalability, revisions were made in the scale items.

For the second administration three statements, 2, 3, and 4, were eliminated. The ten remaining statements were not revised or reworded.

Second Administration, Analysis, and Statement Revision

The set of ten statements was readministered to another group of 25, coed, freshmen through senior, students at Smith High School with the requirement that they, too, evaluate the items on a five-point, strongly agree to strongly disagree, continuum. The researcher supervised the data gathering procedure.

Obtained responses were subjected to SPSS analysis. Results of this administration led directly to the dropping of two response categories in the third administration. The categories remaining were (a) agree, (b) undecided, and (c) disagree.

Statements were not reworded for the third administration. Responses were obtained, however, in three categories. Inasmuch as Guttman Scalograms call for a two-point response, it seemed important to examine statements in the

light of fewer options for evaluation.

Third Administration, Analysis, and
Statement Revision

The third administration, with the same statements and the three response categories, was conducted with an undergraduate, UNC-G, preprofessional recreation class. The class was made up of 21 female and male freshmen students. Sampling changed from high school students to college students when the scalability coefficient was repeatedly low. It was hoped that students in college would have a more stable and definitive attitude about athletic scholarships for women. This, however, did not turn out to be the case. Their responses were coded, keypunched, and run through the computer.

After reviewing the low coefficients of reproducibility and scalability (.8857 and .2941, respectively), it was necessary to reword four statements. Also, in the next process of refining, the "undecided" response category was dropped. Thereafter, then all scales were followed by Guttman's criteria for scale development.

The four statements necessitating revision were:

- 1-1a. Athletic scholarships give many girls a chance to further their education.
- 6-6a. Recruiting athletes leads to unsound educational practices.
- 9-9a. Athletic scholarships provide challenges which highly skilled players deserve.

12-12a. Athletic scholarships for female athletes prevent the attainment of full academic potential.

Fourth Administration, Analysis, and Statement Revision

Twenty-four subjects for this administration were arbitrarily asked to participate in the study. The investigator approached students sitting in the Radar Room of Elliott University Center. Neither sex nor age were taken into consideration in obtaining responses. The data collected from the group were put through the computer's SPSS Guttman Scalogram package.

The cutting point for this set of statements was reduced from 2.0 to 1.5. The rationale for this was to determine if the coefficients of reproducibility and scalability could be increased. No such change occurred.

Only two statements needed rewording for the next administration. They were:

7-7a. Athletic scholarships provide appropriate recognition to qualified girls and women.

10-10a. A female athlete on a scholarship is pressured to perform at a certain athletic performance level.

Fifth Administration, Analysis, and Statement Revision

For this pilot scale the subjects were again selected utilizing the same criteria as the fourth administration. Twenty students were selected to respond to the revised statements in two response categories. Their responses were

coded, keypunched, and computer analyzed.

Again the cutting point was set at 1.5. Because the previous trial and the results of the fifth administered scale did not meet Guttman's criteria for reproducibility and scalability, the responses were rerun with a cutting point of 2.0. This effort was futile. After the responses were recoded, repunched, and rerun on the SPSS program, the resulting coefficients of reproducibility and scalability were the same as those obtained when the cutting point was 1.5. They were .8500 and .1176, respectively. Because no difference was found, the cutting point was held at 2.0.

Only three statements needed to be changed. They were:

- 6a-6b. Recruitment of athletes is suited for professional sport, not
for educational sport.
- 9a-9b. Athletic scholarships make possible the attainment of goals
which highly skilled players often seek.
- 7a-7b. The challenge of athletic scholarships is good for qualified
girls and women.

Sixth Administration, Analysis, and Statement Revision

Students were selected in Elliott University Center on the same basis as in administrations four and five. Twenty-two subjects agreed or disagreed to the ten revised statements. Their responses were coded, keypunched, and scaled according to the SPSS Guttman Scalogram program.

The statements were evaluated and the coefficients of reproducibility and scalability were found to have decreased in this scale, .8182 and .0476, respectively. An intensive evaluation by the researcher with her adviser was done. The decision to strengthen verbs, to rearrange words, or to change the entire meaning of a statement was made.

Five of the ten statements were edited and modified. They were as follows:

- 5-5a. Girls should have comparable opportunities as boys to obtain athletic scholarships.
- 6b-6c. Recruitment of athletes is an anti-educational practice.
- 9b-9c. Athletic scholarships provide challenges which highly skilled players seek.
- 10a-10b. A female on a scholarship is under continuous pressure to perform at high levels.
- 11-11a. Competition which subsidized women athletes endure is not desirable.

Two new statements were added and statements 7b and 8 were dropped.

The new additions were:

- 14. Athletic scholarships distinguish outstanding athletic ability.
- 15. If scholarships are appropriate recognition for specific intellectual abilities they are also appropriate for specific athletic abilities.

Seventh Administration, Analysis, and
Statement Revision

Twenty-five students again were selected from Elliott University Center invoking the same criteria in previous pilot trials. To the investigator's best knowledge no student responded to more than one administration. The responses from this pilot were put through the same procedures as the previous six administrations.

Due to the complete revamping of statements it was anticipated that both coefficients--scalability and reproducibility--would increase and approach acceptable standards. Such a result did not occur. The coefficient of reproducibility increased to .8640 but the coefficient of scalability did not. It dropped to .0968. So the investigator attempted, as a last effort, to simply eliminate two of the statements, recalculate, and determine how the remaining eight statements correlated. Results of the analysis yielded a slight decrease in the coefficients of reproducibility and an increase in scalability. The eight-statement scale was closer to Guttman's criteria than all of the previous trials; the coefficient of reproducibility was .8556 and the coefficient of scalability was .3659. However, both coefficients were too low to be acceptable.

Inability to produce a scale of at least eight statements with a two-point response option which yielded a coefficient of scalability of at least .5000 led to the realization that the phenomenon under investigation, specifically, attitudes toward athletic scholarships for women, is unmeasurable at this time utilizing the Guttman technique. Perhaps the topic under investigation was not

unidimensional but bidimensional, tridimensional, or multidimensional. It was reasoned that many meanings are assigned to terms "scholarships" and "female athletes." Furthermore, there is the distinct probability that individuals have not formulated, either intentionally or accidentally, an attitude at all.

The original strategy, to develop a Guttman scale capable of measuring attitudes toward athletic scholarships for women obviously needed to be modified. As an alternative the investigator attempted to formulate two separate Guttman scales, one which assessed athletic scholarships and the other concerned with women in sport. Separation of these two concepts it was hoped would make possible the assessment of attitudes held toward them.

Athletic Scholarship Scale

Twenty-one different statements concerning athletic scholarships were formulated from the original pool. The 21 statements were:

1. Athletic scholarships give athletes a chance to further their education.
2. People who are highly skilled in sports should be given the opportunity to receive an athletic scholarship.
3. Unethical recruiting practices develop from the offering of athletic scholarships.
4. Athletic scholarships distinguish outstanding athletic ability.
5. Athletic scholarships provide challenges which highly skilled players seek.

6. An athlete on an athletic scholarship is under continuous pressure to perform at high performance levels.
7. An athlete on an athletic scholarship places her/his academic accomplishments second to her/his sport efforts.
8. Athletic scholarships take the "fun" out of competition.
9. The skill competencies of athletes are improved as a result of providing athletic scholarships.
10. Athletes on athletic scholarships should be provided tutors to aid in their successful completion of academic requirements.
11. As long as scholarships are awarded for special talents, i.e., music, math, art, etc., recognition of talent in sports is justifiable.
12. Scholarships in higher education should only be given to individuals in financial need.
13. Public education, e.g., state colleges/universities are so heavily supported by taxpayers that one could think of each student as receiving sufficient financial aid without giving additional scholarships.
14. An athletic scholarship denies the athlete the time to participate in other activities because her/his time must be spent in practice for the school's team.
15. Athletes on athletic scholarships have more pressure to win and to be #1 than athletes who are not on athletic scholarships.

16. The development of sport skills is a part of the total education of a person.
17. If an athlete fails to perform satisfactorily in her/his academics, a scholarship should be withdrawn.
18. When all is said and done, an athletic scholarship is simply payment for athletic performance.
19. Students whose college education is made possible by athletic scholarships perform better in academic and sport efforts than non-scholarship students.
20. Inasmuch as financial reward is built into the American way of life, it is not logical to expect recognition in sports to be different.
21. Athletic scholarships are more often given to enhance the reputation of the school than to give an athlete a chance for an education.

First Administration, Analysis, and
Statement Revision

Statements 1 through 15 were administered to shoppers at the Four Seasons Mall in Greensboro, North Carolina during February, 1975. Shoppers were selected arbitrarily, regardless of sex, age, or race. The investigator positioned herself in one general locale for each trial administration of the scalogram. The same procedures used in the initial portion of the endeavor were utilized throughout the remaining pilots, i. e., statement revision, retyping a new ditto, retesting, recompiling the data deck, and running the deck through the computer, then repetition of these procedures. Two response alternatives,

agree and disagree, were provided for all statements, whether original or revised, during this scale development. Besides meeting Guttman's standards two response categories forced the subjects to commit themselves, either positively or negatively, to the statement. Two response categories also enabled the investigator to rank the subject(s) depending on the number of favorable responses as opposed to negative ones. The results from this trial yielded the following statistics:

Statements: 1, 2, 3, 5, 6, 7, 8, 10, 12, 13, 14, 15

Coefficient of reproducibility: 0.8788

Minimum marginal reproducibility: 0.8144

Percent improvement: 0.0644

Coefficient of scalability: 0.3469

Rank: 12, 14, 7, 15, 8, 3, 5, 6, 13, 1, 2, 10

Explanation: For statement 1, 32% of the people failed that should have passed. Five people failed statement 13 that should have passed and one person passed that should have failed. Seven subjects had a scale score of either five or four. No statements were reworded for the second trial, but six statements were dropped, 2, 4, 6, 9, 10, and 14, due to poor correlation with other statements.

Second Administration, Analysis, and Statement Revision

The second administration procured responses from 21 subjects to nine statements, 1, 3, 5, 7, 8, 11, 12, 13, and 15. Each statement had two

response categories, agree and disagree. The obtained responses were subjected to SPSS analysis which led the investigator to drop two statements due to poor correlations with other statements and add three statements for the third attempt. The results were:

Statements: 1, 3, 5, 7, 8, 11, 12, 13, 15

Coefficient of reproducibility: 0.7460

Minimum marginal reproducibility: 0.7090

Percent improvement: 0.0370

Coefficient of scalability: 0.1273

Rank: 8, 12, 15, 3, 7, 13, 11, 5, 1

Explanation: More people disagreed with statement 8 in this administration than in previous ones. Three people passed that should have failed. Statements 5 and 13 were reworded for this trial. These two statements switched in their rank position. More subjects agreed with statement 7 in this administration with its rewording than in the previous one. Statements 12 and 15 had seven people pass that should have failed while statement 13 had eight people fail that should have passed. For this administration eight respondents had a scale type of four.

Third Administration, Analysis, and Statement Revision

Ten statements, 1, 3, 5, 6, 7, 8, 11, 14, 15, and 16, were utilized in the third administration. Twenty subjects' responses were processed and

analyzed. The results yielded the following statistics:

Statements: 1, 3, 5, 6, 7, 8, 11, 14, 15, 16

Coefficient of reproducibility: 0.8200

Minimum marginal reproducibility: 0.7700

Percent improvement: 0.0500

Coefficient of scalability: 0.2174

Rank: 8, 14, 15, 3, 7, 6, 1, 5, 11, 16

Explanation: Statements 7, 15, 3, and 7 stayed in the same rank

order; 5 and 11 switched positions. Statement 1 moved three positions to its left, meaning more respondents disagreed with it.

Statement 14 had seven people passing (45%) that should have failed.

Six subjects had a scale type of seven.

After evaluating the statistics the researcher decided to try a different approach that hopefully would yield a higher scalability index.

Fourth Administration, Analysis, and Statement Revision

The investigator obtained responses to 12 of the original 21 statements from 21 people at Four Seasons Mall. Their responses were coded, then run through the SPSS program on the computer. The scalability statistic was only .2459 so the researcher decided to try different combinations (4.1 through 4.6) of these statements. From these same 12 statements the investigator tried six different combinations of statements with these 12 responses hoping to obtain higher scalability and reproducibility coefficients as one combination. For the

fourth pilot scale the following combinations, results, and statistics were:

Statements: 1, 3, 7, 8, 11, 14, 15, 16, 17, 18, 19, 21

Coefficient of reproducibility: 0.8083

Minimum marginal reproducibility: 0.7458

Percent improvement: 0.0625

Coefficient of scalability: 0.2459

Rank: 8, 19, 14, 7, 17, 15, 21, 18, 3, 16, 1, 11

Explanation: When additional statements were added (19, 17, 21, 18), only minor positions in rank ordering occurred.

TRIAL 4.1:

Statements: 1, 3, 7, 8, 15, 16, 17, 18, 20, 21

Coefficient of reproducibility: 0.8000

Minimum marginal reproducibility: 0.7150

Percent improvement: 0.0850

Coefficient of scalability: 0.2982

Rank: 8, 20, 7, 17, 18, 15, 21, 3, 16, 1

Explanation: Statements 15 and 18 changed positions but both had three people passing. On statement 20, 45% of the respondents passed that should have failed; statement 21, 35% of the people failed that should have passed. Six respondents had a scale score of seven.

TRIAL 4.2:

Statements: 1, 7, 8, 11, 15, 16, 17, 18, 19, 21

Coefficient of reproducibility: 0.8000

Minimum marginal reproducibility: 0.7500

Percent improvement: 0.0500

Coefficient of scalability: 0.2000

Rank: 8, 19, 7, 17, 15, 21, 18, 16, 1, 11

Explanation: Statement 18 shifted more to the agreeable side but the percentages of people failing and passing this statement were approximately the same as in Trial 4.1. The scale scores were scattered either four, seven, or eight.

TRIAL 4.3:

Statements: 1, 3, 7, 8, 11, 15, 16, 17, 21

Coefficient of reproducibility: 0.8556

Minimum marginal reproducibility: 0.7722

Percent improvement: 0.0833

Coefficient of scalability: 0.3659

Rank: 8, 7, 17, 15, 21, 3, 16, 1, 11

Explanation: Statements 18 and 19 from Trial 4.2 were deleted in this trial; statement 3 was added. With the exception of statement 3 all statements remained in the same rank order. The scale score for seven subjects was six.

TRIAL 4.4:

Statements: 1, 3, 7, 11, 15, 16, 17, 21

Coefficient of reproducibility: 0.8500

Minimum marginal reproducibility: 0.7562

Percent improvement: 0.0938

Coefficient of scalability: 0.3846

Rank: 7, 17, 15, 21, 2, 16, 1, 11

Explanation: Only statement 8 was dropped for this trial and all statements remained in the same rank order for the third straight time.

Again the scale score for seven respondents was six.

TRIAL 4.5:

Statements: 1, 3, 8, 11, 15, 16, 17, 18

Coefficient of reproducibility: 0.8500

Minimum marginal improvement: 0.8125

Percent improvement: 0.0375

Coefficient of scalability: 0.2000

Rank: 8, 17, 15, 18, 3, 16, 1, 11

Explanation: All statements in this trial that were in Trial 4.4 (17, 1, 15, 16, 3, and 11) remained in the same rank position. Statement 8 was reinserted into this trial; its rank position was the same as in Trial 4.1, 4.2, and 4.3. Six respondents had a scale score of six; five had a score of either five or seven.

TRIAL 4.6:

Statements: 1, 3, 8, 11, 16, 18, 19, 20

Coefficient of reproducibility: 0.8125

Minimum marginal reproducibility: 0.8062

Percent improvement: 0.0063

Coefficient of scalability: 0.0325

Rank: 8, 19, 20, 18, 3, 16, 1, 11

Explanation: Statements 16, 1, and 11 remained in the same rank order for the previous three trials and with this trial. Their correlations have remained the same each time, -1.000. The same is true for statements 17 and 15. Their correlations for the previous three trials and for this trial was .6327. The scale score was again six for six subjects and six for five subjects.

In selecting the above combinations no pattern or particular method was used. The investigator chose statements that she thought should correlate well based on her previous experience with the trial development of a Guttman scale. The combination, Trial 4.6, had the highest scalability coefficient, which was .3846. The reproducibility coefficients for this combination was also the highest with .8500.

Fifth Administration, Analysis, and Statement Revision

The nine statements in pilot 4.6 were then administered to 19 college students in a preprofessional recreation class on the campus of UNC-G. The responses were put through the same procedures as all previous pilots. Analysis of the responses was not satisfactory. The coefficient of reproducibility was .8480; and the coefficient of scalability was .1875, considerably below acceptable Guttman scale criteria. The statistics for the fifth administration are as follows:

Statements: 1, 3, 7, 8, 11, 15, 16, 17, 21

Coefficient of reproducibility: 0.8480

Minimum marginal reproducibility: 0.8129

Percent improvement: 0.0351

Coefficient of scalability: 0.1875

Rank: 8, 7, 21, 15, 17, 16, 3, 1, 11

Explanation: These statements, all from Trial 4.6, were administered to a new group of subjects. The rank order for this trial was different than in Trial 4.6. Statement 17 moved up three positions; statements 3 and 16 switched positions. All statistics were lower in this trial with the coefficient of scalability considerably lower. As in Trial 4.6 the scale score for seven respondents was six.

Continuous inconsistency among trials was interpreted by the researcher as indicating that the development of a Guttman scale which measures attitudes toward athletic scholarships was not feasible. It was reasoned that attitudes toward the practice of recognizing or rewarding athletic aptness were truly confused by economic, ethical, and philosophical conflicts. Responses to the statements revealed that no clear-cut point of view can be identified among different groups of individuals. This is understandable in the light of sport as big business, the belt-tightening trends with respect to education budgeting, and other currently popular themes among Americans.

Women in Sport Scale

The development of a Guttman scale measuring attitudes toward women in sport was more successful. Some of the ideas and meanings represented in the ten statements were suggested by Harres' study (1968). Still others were formulated by the researcher based on personal experiences. The 16-statement pool is as follows:

1. Women's collegiate sport programs should be comparable to the men's program.
2. Highly skilled women athletes deserve to have highly qualified coaches.
3. Women who participate in sports develop masculine mannerisms and attitudes.
4. Female athletic teams would more likely improve in caliber if they had male coaches.
5. Males and females should not participate on the same teams, no matter what the sport.
6. Women should have the opportunity to participate in sports but not at the expense of the men's program.
7. No female athlete can ever be as good as a male athlete.
8. Differences in strength, endurance, and other physical abilities, make women inferior athletes to men.
9. There are various places where women's talents can be appreciated other than sport.

10. Every individual, regardless of sex should have the opportunity to develop her/his talents to their fullest.
11. Sportswomen are generally attractive, self-assured, extroverted, and happy.
12. Sports for females are fine at a low level of competition.
13. Participation in athletic competition trains women to face the problems of everyday living.
14. The competitive drive necessary for success in athletic competition is an unfeminine trait.
15. Competition for women places too much importance on winning and aggressiveness.
16. It is healthy for women to be subjected to the emotional stress of sport competition.

First Administration, Analysis, and
Statement Revision

Twenty subjects were asked to respond to the first pilot scale measuring attitudes toward women in sport. These subjects, as in all remaining pilots, were arbitrarily solicited shoppers from the Four Seasons Mall in Greensboro, North Carolina. The investigator stationed herself in one general area of the mall and invited those persons over 18 and under 65 to respond to the statements. This was similar to the procedure used in attempts to develop the previous scale. Not everyone asked agreed to respond. For the entire study, three out of approximately 200 people refused to respond. Those from whom data were collected

seemed interested in the project, cooperative, and gave the impression that their responses were thoughtful and truthful.

The responses, as in all previous pilots, were then coded, the data deck was reformulated, and the SPSS Guttman Scalogram program was utilized. The results were then analyzed and statement revisions completed, and are as follows:

Statements: 1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15

Coefficient of reproducibility: 0.7833

Minimum marginal reproducibility: 0.7500

Percent improvement: 0.0333

Coefficient of scalability: 0.1333

Rank: 8, 13, 12, 10, 15, 7, 9, 3, 6, 11, 1, 5

Explanation: Statement 5 had good correlations with all of the other statements. Statements 9 and 10 had six errors each. Statement 9 had six people passing that should have failed and statement 10 had six subjects failing that should have passed. The scale score was seven for eight subjects.

Revision included dropping, to adding and to rewording statements that did not produce a satisfactory correlation coefficient with other statements.

Second Administration, Analysis, and
Statement Revision

For the second pilot statements, 6, 9, 11, 12, and 16 were dropped.

The following were semantic changes in the remaining ten statements:

- 1-1a. Women's sport programs should be comparable to the men's program.
- 3-3a. Women who participate in sports develop masculine mannerisms.
- 13-13a. Participation in sports prepares women to deal with other competitive challenges.
- 15-15a. Competition for women places too much importance on aggressiveness.

Twenty-one shoppers then responded to this set of statements. The analysis yielded results that were acceptable by Guttman's criteria. After failure in the initial strategy, the separation of the concept into two more manageable terms was supported. The investigator's notion that women in sport did fit Guttman's criteria of unidimensionality was rewarded. The coefficients of reproducibility and scalability were .9333 and .5000, respectively. The results were:

Statements: 1, 2, 3, 5, 7, 8, 10, 13, 14, 15

Coefficient of reproducibility: 0.9333

Minimum marginal reproducibility: 0.8667

Percent improvement: 0.0667

Coefficient of scalability: 0.5000

Rank: 7, 14, 15, 3, 8, 5, 1, 2, 13, 10

Explanation: Every statement moved in its rank order. Statements 2, 7, 10, 13, 14, and 15 had correlations of -1.000 or 99.000 . Not one statement had more than 3 errors in it. Seven subjects had a scale score of five.

Third Administration, Analysis, and Statement Revision

After obtaining a scale measuring attitudes toward women in sport and the scale meeting Guttman's criteria, still another effort was made to raise the scalability coefficient. Repeated administration of this with slight word changes that were thought to connote subtle differences in meaning, failed to improve the reproducibility and scalability coefficients. The statistics were:

Statements: 1, 2, 3, 5, 7, 8, 10, 13, 14, 15

Coefficient of reproducibility: 0.8800

Minimum marginal reproducibility: 0.8700

Percent improvement: 0.0100

Coefficient of scalability: 0.0769

Rank: 7, 14, 15, 3, 8, 1, 5, 13, 2, 10

Explanation: The statements, 2, 7, 10, 14, and 15 again had the same correlations as in the second administration. Statement 13 had good correlations with all of the other statements except 3. This time their correlation was -0.4444 . The only statement that had an unusually high number of errors was 8, where five people passed that should have failed. Ten respondents had a scale score of five.

Obtained differences in the responses led to the realization that the scale should be left to stand precisely as tested in the second administration. All the statistics in this administration of the women in sport scale met Guttman's criteria for a valid (coefficient of reproducibility is greater or equal to 0.9000), unidimensional and cumulative (coefficient of scalability is greater than or equal to 0.5000) scale. The differing statistics within the three trials show that attitudes toward women in sport are somewhat unstable but scalable. But the second administration, those statements appearing in Appendix B, confirms that this phenomena is scalable.

CHAPTER IV

SUMMARY, DISCUSSION, AND CONCLUSION

The following chapter summarizes the research process and identifies particular concerns that arose during the conduct of the study and consideration of its results. The chapter concludes by presenting answers to the questions which framed the inquiry.

Summary

The purpose of this study was to develop two Guttman scales: one which measured attitudes toward athletic scholarships and a second which assessed attitudes toward women in sport. This research was also intended to suggest an approach to attitude study which has received little attention from physical educators.

Subjects participating in this study were women and men between the ages of 18 and 65. They represented populations of college students, high school students, and laypersons--shoppers at a nearby mall. Each pilot trial utilized between 20 to 30 subjects. Subjects responded to the given number of statements by circling her/his selected response. In the early stage of development, there were five response categories, ranging from most favorable to least favorable. As the study progressed subjects were required to be more decisive by narrowing the choice of responses to two: agree or disagree.

Analysis utilized the SPSS Guttman Scalogram program and called for the development of a new data deck for each pilot trial. The following criteria were invoked in evaluating the statements: (a) correlation with every other statement, (b) coefficient of reproducibility, (c) coefficient of scalability, and (d) the pass/fail tally. Obtained values were studied in the light of the semantic meaning intended by the researcher for each statement.

Following analysis, statements were revised, eliminated completely, or retained as presented. The procedures utilized in statement revision were as follows: (a) statements were formulated and copies were prepared for administration, (b) responses from subjects were collected, (c) statements were coded, (d) responses were coded and keypunched, (e) the data deck for the trial was collated, (f) the data deck was run utilizing SPSS Guttman Scalogram program, (g) statistics and statements were evaluated, and (h) statements were revised, readministered, and the same procedures were repeated until a satisfactory level of reproducibility and scalability were obtained.

The criteria for a Guttman scale to be valid and unidimensional are coefficients of reproducibility and scalability of at least .9 and .5, respectively.

Eleven trials of the athletic scholarship scale did not yield acceptable coefficients of reproducibility and scalability. It was reasoned that attitudes toward athletic scholarships were non-scalable in accord with Guttman technique. On the second trial of the women in sport scale, the coefficients of reproducibility and scalability were .9333 and .5000, respectively. Thus, a satisfactory scale was developed.

Discussion

The development of the scale to measure attitudes toward athletic scholarships was not successful. There are several factors that may explain the failure. First, it seems reasonable to infer that people really have ambivalent feelings about athletic scholarships. Some of the reasons for this include: (a) confusion about the appropriateness of recognizing athletic talent as compared to recognizing intellectual talent, (b) concern for the quality of leadership, the coach, that is, who may influence the athlete, (c) mistrust of recruitment practices in attracting athletes to institutions of higher education, (d) uncertainty about the appropriate goals for educational athletics--winning for the sake of winning or the contributions of the experience to the development of athletes, and (e) confused ethical principles. Furthermore, the competitive sports scene has been influenced by the media, big business, and political systems. Athletes have been exploited. Concepts of sportsmanship, fair play, and respect for opponents are elements of competitive sport which today may truly be viewed differently by sport consumers than by sport participants. It is little wonder that attitudes as reflected in general statements cannot be arranged according to a unidimensional scale.

The researcher is of the personal opinion that most of the values previously attributed to competition in sport are still respected by the large majority of today's athletes. A flaw in the present research strategy was to expect representatives of the population at large, sport consumers, to be aware of their attitudes about a highly complex issue. It would have been more logical

to first study attitudes toward scholarships among athletes themselves.

Meanings assigned to words pose problems in a study of this type. Although an attempt was made to consider the full range of attitudes about athletic scholarships--ranging from very conservative to ultra liberal--the expectations of the investigator were not within the realm of the subjects' interpretations and responses. This may be explained by deep-rooted value distinctions between the researcher and the individuals in the locale in which the research was conducted. For example, question six of the original statement pool read, "Questionable recruiting practices may develop from the offering of athletic scholarships." The researcher believed this to be a "middle of the road" type statement. That is, it did not suggest a value about athletic scholarships. The word "questionable" does not imply either rightness or wrongness and the verb, "may develop," does not implicate that such practices do exist. But the responses to the statement did not correlate adequately with the other statements so it was revamped in Trial 3 to read as follows, "Recruiting athletes leads to unsound educational practices." This statement conveys an altogether different meaning than the previous one. It is judgmental. But again, this statement did not scale. Its words and meanings were again modified. For the sixth trial, the statement read, "Recruitment of athletes is suited for professional sport, not for educational sport." The correlations were still not adequate. There seemed to be no way of capturing the researcher's desired meaning and at the same time, satisfying scalability requirements from the subjects' responses.

An attempt was made in Trial 7 to reflect the investigator's belief that if scholarships are to be awarded in higher education for recognizing special abilities--intellectual, artistic, and notoric--then, they should all be awarded on the same basis, utilizing the same criteria. Two statements were added: (a) "Athletic scholarships distinguish outstanding athletic ability," and (b) "If scholarships are appropriate recognition for specific intellectual abilities, they are also appropriate for specific athletic abilities." Both of these statements did not generate suitable correlation coefficients with other scale items to be retained.

The lack of suitable correlations for the four statements discussed above led the researcher to deduce that people do not realize, nor do they want to realize, the ethics involved in recruiting and in awarding of athletic scholarships. This is contrary to the speculation that this would not be the case in North Carolina in which the present study was conducted. Within the past five years, two of the major universities in this state have been put on probation by the NCAA for recruiting violations.

The inability to build a Guttman scale suggests uncertainty about the purposes of competitive athletics in colleges and universities. There is obvious confusion about the appropriateness of colleges and universities to recruit and to award athletic scholarships, to bring publicity to the school, to entertain the alumni and the community, to make money, to win and to be "Number One." In today's society, the valuing of athletic scholarships is confounded by the purposes of scholarships and the acceptance of athletics as an educational endeavor.

The attainment of an acceptable attitude scale for the women in sport measurement has numerous implications for future developments in women's programs. The current trend in America is toward the de-emphasization of the differences between the sexes. Sport is no longer thought to be "masculine territory." Many of the statements that were developed for the women in sport scale were intentionally tainted with inferences about the old myth that sport masculinizes women. Examples include phrases like, "competitive drive is an unfeminine trait," "masculine mannerisms," "aggressiveness," "emotional stress," and "women's talents can be appreciated in places other than sport." The scale developed in this study has the potential to give a "reading" about the extent to which such ideas about women in sport exists. Use of the scale by those people involved with the development of women sport programs, can provide definitive direction for women and how their sport programs may be expanded to fit the changing roles of women in today's society. Repeated use of the scale will yield insights into the effects of new programs that hopefully will concern themselves with the positive values in sport and competition.

A final point in this discussion pertains to Guttman's technique. As pointed out in the review of literature chapter, there are pros and cons to the use of Guttman Scale Analysis. The same may be said about other attitude measuring techniques, e.g., the Likert and Thurstone methods. The Guttman scale technique, however, has the advantage of being a short instrument, one that is relatively quick to administer. To respond to it, requires little effort. It is easy to update to keep abreast of rapidly changing attitudes by simple modifications

in wording or changing one of two statements.

Unlike the Likert and Thurstone techniques for measuring attitudes, Guttman scales are suited for procuring attitude information quickly and efficiently. The investigator found that for the majority of subjects in each trial pilot, only five to seven minutes was needed to indicate a favorable or unfavorable response to each statement. When a specific group of subjects was used, e. g., high school students, it took a total of ten minutes to explain the procedures, obtain subject responses, and collect the scale form. When collecting data at the shopping mall, approximately 30-50 minutes were needed to explain the procedures, obtain responses, and collect the forms from at least 20 shoppers. The time needed was dependent upon how heavily populated the area was with shoppers. The investigator's personal observation of those responding to the scale was one of willingness and pleasure. The factor which induced them to participate was the minimal imposition on time needed to express their views.

The ultimate usefulness or acceptance of this new attitude scale is not now known. Given Guttman's basic notion of a "universe of attitudes," there may always be some individuals loathe to accept the validity of scalogram statements. Regardless, the production of this scale gives to the profession one more approach to the measurement of attitudes concerning women in sport. It has come at a time when numerous critical decisions regarding sport programs for women are being made in the schools and in society at large.

Conclusion

The purpose of this study is to develop two Guttman scales: one which assesses attitudes toward athletic scholarships and the second which measures attitudes toward women in sport. In answer to the specific questions posed for investigation, the following responses are offered.

1. Is Guttman Scale Analysis a feasible strategy for assessing attitudes toward athletic scholarships? If so, how is such a scale formulated? What is its contents? If not, why not?

The present study fails to produce an acceptable scale. The point is made however, this failure is believed to be due to the complexity and confusion surrounding the phenomenon under study not the soundness of Guttman strategy.

2. Is Guttman Scale Analysis a feasible strategy for assessing attitudes toward women in sport? If so, how is such a scale formulated? What is its contents? If not, why not?

Guttman Scale Analysis is an appropriate tool for measuring attitudes toward women in sport as demonstrated in the present study. The Guttman scaling technique is amendable to easy change and revision and as such has advantages over other techniques to studying attitudes for phenomena which are in a state of flux or transition such as women in sport is today.

A scale such as the one described in this study can be formulated by using the following procedures: (a) formulating statements, (b) obtaining subject

responses, (c) coding statements, (d) coding and keypunching responses, (e) collating the data deck by combining job control cards and data cards, (f) computing coefficients of reproducibility and scalability and other SPSS Guttman Scalogram Statistics, (g) evaluating statistics and statements, and (h) reviewing statements as necessary.

Oh, yes, I am wise
but it's wisdom born of pain.

Yes, I paid the price
but look how much I gained.
If I have to I can do anything.

I am strong, I am invincible, I am woman. (Reddy, 1973)

Whereas Helen Reddy's tune captures the spirit of today's serious-minded sports-woman, it is hoped that this study makes a small contribution to the innovativeness and rigor needed to carefully evaluate and gain an understanding of female sport involvement in American life.

BIBLIOGRAPHY

- Aten, R. (Ed.). Softball guide. Washington, D. C.: American Association for Health, Physical Education, and Recreation, 1966.
- Bergen, G. R., Upham, J. A., and Bergen, M. B. Do Scholarships Affect Academic Motivation. Journal of College Student Personnel, 1970, 11, 383-4.
- Blaufarb, M. (Ed.). Policies on Women Athletes Change. Update, May 1973, 11.
- Cheska, A. Current Developments in Competitive Sports for Girls and Women. Journal of Health, Physical Education, and Recreation, March 1970, 41, 86-91.
- Clark, K. E. and Kriedt, P. H. An Application of Guttman's New Scaling Technique to an Attitude Questionnaire. Educational and Psychological Measurement, 1948, 8, 215-224.
- Clayton, R. R. Guttman Scaling: An Error Paradigm. Pacific Sociological Review, 1973, 16, 5-26.
- Denny, T. J. and Busher, J. B. Can the Able Student Really Win a Scholarship? Educational Digest, January 1969, 34, 52-3.
- Dotson, L. Elaboration of Guttman scaling techniques. In G. F. Summers (ED.), Attitude measurement. Chicago: Rand McNally, 1970, 203-213.
- Edwards, A. L. On Guttman Scale Analysis. Educational and Psychological Measurement, 1948, 8, 313-318.
- Edwards, A. L. Techniques of attitude scale construction. New York: Appleton-Century-Crofts, Inc., 1957, 172-199; 200-218.
- Edwards, A. L. and Kilpatrick, F. P. A Technique for the Construction of Attitude Scales. Journal of Applied Psychology, 1948, 32, 374-384.
- Edwards, A. L. and Kilpatrick, F. P. Scale Analysis and the Measurement of Social Attitudes, Psychometrika, 1948, 13, 99-114.

- Festinger, L. The Treatment of Qualitative Data by "Scale Analysis". Psychological Bulletin, 1947, 44, 149-161.
- Ford, R. N. A Rapid Scoring Procedure for Scaling Attitude Questions. Public Opinion Quarterly, 1950, 14, 507-532.
- Garman, J. F. A Study of Attitudes Toward Softball Competition for Women, Unpublished master's thesis, University of California, Santa Barbara, 1962.
- Gerber, E. W. The changing role of women in sport. Presented at a Symposium on The Changing Role of Women in American Society, Coker College, Hartsville, South Carolina, January 14-17, 1974.
- Goodenough, W. H. A Technique for Scale Analysis. Educational and Psychological Measurement, 1944, 4, 179-190.
- Guttman, L. A Basis for Scaling Qualitative Data. American Sociological Review, 1944, 9, 139-150.
- Guttman, L. An Outline of Some Methodology for Social Research. Public Opinion Quarterly, 1954, 18, 395-404.
- Guttman, L. On Festinger's Evaluation of Scale Analysis. Psychological Bulletin, 1947, 44, 451-465.
- Guttman, L. Scale Analysis, Factor Analysis, and Dr. Eysenck: A Reply. International Journal of Opinion and Attitude Research, 1951, 5, 103-120.
- Guttman, L. Suggestions for Further Research in Scale and Intensity Analysis of Attitudes and Opinions. International Journal of Opinion and Attitude Research, 1947, 1, 30-35.
- Guttman, L. and Foa, U. G. Social Contact and An Intergroup Attitude. Public Opinion Quarterly, 1951, 15, 43-53.
- Guttman, L. and Foa, U. G. Statistical Technique. International Journal of Opinion and Attitude Research, 1950, 4, 285-287.
- Guttman, L. and Suchman, E. A. Intensity and a Zero Point for Attitude Analysis. American Sociological Review, February 1947, 12, 57-67.
- Harres, B. Attitudes of Students Toward Women's Athletic Competition. Research Quarterly, May 1968, 39, 278-284.

- Hayes, D. P. Item Order and Guttman Scales. The American Journal of Sociology, July 1964, 70, 51-58.
- Higdon, R. and Higdon, H. What Sports for Girls? Today's Health, October 1967, 21-23; 74-76.
- Holland, J. R. (Ed.). AIAW handbook of policies and operating procedures, 1974-1975. Washington, D. C.: AAHPER Publications, 1974.
- Koenig, F. Scholarships and reorganization. DGWS News, Spring 1973, 2, 1-2.
- Lazarsfeld, P. F. (Ed.). Mathematical thinking in social sciences. Glencoe, Illinois: The Free Press, 1954, 216-257.
- Leyhe, N. Attitudes of the women members of the AAHPER toward competition in sports for girls and women. Unpublished doctoral dissertation summary. Indiana University, 1955.
- Magnusson, L. The What and Why of AIAW. Journal of Health, Physical Education, and Recreation, March 1972, 43, 71.
- McGee, R. Comparison of Attitudes Toward Intensive Competition for High School Girls. Research Quarterly, March 1956, 27, 60-73.
- McKnight, D. and Hult, J. Competitive Athletics for Girls--We Must Act. Journal of Health, Physical Education, and Recreation, June, 1974, 45, 45-6.
- Menzel, H. A New Coefficient of Scalogram Analysis. Public Opinion Quarterly, Summer 1953, 17, 268-280.
- Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., and Bent, D. H. Statistical package for the social sciences (2nd ed.). New York: McGraw Hill, Inc., 1975.
- Schuessler, K. F. A Note on Scale Analysis and Factor Analysis. Sociometry, December 1966, 29, 461-467.
- Schuessler, K. F. A Note on Statistical Significance of Scalogram. Sociometry, September 1961, 24, 312-318.
- Scott, P. Reflections on Women in Sport. Proceedings of the Second National Institute on Girls' Sports. Part I, Salt Lake City, January 23, 1966, 7-13.

- Scott, P. Women's Sports in 1980. Proceedings of the Second National Institute on Girls' Sports. Part II, Salt Lake City, January 23, 1966, 143-148.
- Segal, D. An Appraisal of the Influence of WWII on Testing Practices. Education for Victory, April 20, 1944, 3.
- Shea, E. J. and Wieman, E. E. Administrative policies for intercollegiate athletics. Springfield, Illinois: Charles C. Thomas, 1967, 129.
- Sherriff, M. C. The status of female athletes as viewed by selected peers and parents in certain high schools of central California. Unpublished master's thesis, Chico State College, 1969.
- Sherron, R. H. A Study of Academic and Nonacademic Predictors and Criteria of Success Among Scholarship Recipients. The Journal of Experimental Education, Spring 1970, 38, 72-82.
- Stouffer, S. A., Suchman, E. A., Guttman, L., Lazarfeld, P. F., Star, S. A., and Clausen, J. A. In S. A. Stouffer (Ed.). Measurement and prediction (Vol. 4). Princeton, New Jersey: Princeton University Press, 1950.
- Suchman, E. A. and Guttman, L. A Solution to the Problem of Question "Bias". Public Opinion Quarterly, 1947, 11, 445-455.
- Torgerson, W. S. Theory and methods of scaling. New York: John Wiley and Sons, Inc., 1958.
- Trent, J. W. A New Look at Recruitment Policies. College Board Review, Winter 1965-66, 58, 7-11.

JOB NAME GUTTMAN SCALE PRINT
 VARIABLE LIST A,B,C,E,G,H,I,M,N,P
 INPUT MEDIA CARD
 # OF CASES 21
 INPUT FORMAT FIXED(115,10F2.0)

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
A	F 2. 0	1	15- 16
B	F 2. 0	1	17- 18
C	F 2. 0	1	19- 20
E	F 2. 0	1	21- 22
G	F 2. 0	1	23- 24
H	F 2. 0	1	25- 26
I	F 2. 0	1	27- 28
M	F 2. 0	1	29- 30
N	F 2. 0	1	31- 32
P	F 2. 0	1	33- 34

THE INPUT FORMAT PROVIDES FOR 10 VARIABLES. 10 WILL BE READ
 IT PROVIDES FOR 1 RECORDS ('CARDS') PER CASE. A MAXIMUM OF 33 'COLUMNS' ARE USED BY A RECORD.

GUTTMAN SCALE PRINT(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)
 STATISTICS ALL
 READ INPUT DATA

PRINTOUT OF WOMEN IN SPORT SCALE

APPENDIX A

GUTTMAN SCALE PILOT 1

01/15/75

PAGE 2

FILE NONAME (CRFATTON DATE = 01/15/75)

```

***** GUTTMAN SCALE PILOT 1 *****
A DIVISION POINT = 2.00
B DIVISION POINT = 2.00
C DIVISION POINT = 2.00
E DIVISION POINT = 2.00
G DIVISION POINT = 2.00
H DIVISION POINT = 2.00
J DIVISION POINT = 2.00
N DIVISION POINT = 2.00
O DIVISION POINT = 2.00
***** RESP = 1 FOR VALUES EQUAL TO DIVISION POINT AND ABOVE *****
    
```

ITEM	G	N	O	C	H	E	A	B	M	J	TOTAL		
RESP.	0	1	0	1	0	1	0	1	0	1	0	1	TOTAL
	I-ERR	I-ERR	I-ERR	I-ERR	I-ERR	I-ERR	I-ERR	I-ERR	I-ERR	I-ERR	I-ERR	I-ERR	
P	1	1	1	1	1	1	1	1	1	1	1	1	1
T 10	1	0	0	0	0	0	0	0	0	0	0	0	0
L	1	1	1	1	1	1	1	1	1	1	1	1	1
O	1	1	1	1	1	1	1	1	1	1	1	1	1
Y 9	1	0	1	1	0	1	0	1	0	1	0	1	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	2	2	2	2	2	2	2	2	2	2	2	2
1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	1	7	6	6	6	6	6	6	6	6	6	6	6
1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	1	6	6	6	6	6	6	6	6	6	6	6	6
1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	1	4	4	4	4	4	4	4	4	4	4	4	4
1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1

GUTTMAN SCALE PILOT1

04/15/75

PAGE 3

ITEM..	G	N	D	C	H	E	A	B	M	J	TOTAL										
RESP..	0	1	0	1	0	1	0	1	0	1	0	1	TOTAL								
SUMS	20	1	20	1	20	1	19	2	15	6	13	8	7	10	1	20	1	20	0	21	21
PCTS	95	5	95	5	95	5	90	10	71	29	62	38	33	67	5	95	5	95	0	100	100
ERRORS	0	1	1	1	0	0	0	1	0	3	3	1	2	0	0	0	1	0	0	0	14

21 CASES WERE PROCESSED
0 (OR 0.0 PCT) WERE MISSING

STATISTICS..

COEFFICIENT OF REPRODUCIBILITY = 0.9333
MINIMUM MARGINAL REPRODUCIBILITY = 0.8667
PERCENT IMPROVEMENT = 0.0667
COEFFICIENT OF SCALARITY = 0.5000

CORRELATION COEFFICIENTS..

	A	B	C	E	G	H	J	M	N	T
A	1.0000	1.0000	1.0000	0.3043	1.0000	0.5385	09.0000	-1.0000	1.0000	1.0000
B	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.4737	09.0000	-1.0000	1.0000
C	1.0000	1.0000	1.0000	0.2632	1.0000	1.0000	0.6923	09.0000	1.0000	-1.0000
E	0.3043	1.0000	0.2632	1.0000	1.0000	1.0000	0.5923	09.0000	1.0000	-1.0000
G	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.4737	09.0000	-1.0000	1.0000
H	0.5385	1.0000	0.4737	0.6923	1.0000	1.0000	0.4737	09.0000	-1.0000	1.0000
J	09.0000	09.0000	09.0000	09.0000	09.0000	09.0000	09.0000	09.0000	09.0000	09.0000
M	-1.0000	-1.0000	1.0000	1.0000	1.0000	-1.0000	09.0000	1.0000	1.0000	1.0000
N	1.0000	1.0000	-1.0000	-1.0000	-1.0000	-1.0000	09.0000	1.0000	1.0000	-1.0000
T	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	09.0000	09.0000	-1.0000	1.0000
SCALE-TIME	0.3842	0.5226	0.4490	0.0330	1.2902	0.4323	09.0000	-0.1550	-0.1472	1.2902

APPENDIX B

WOMEN IN SPORT ATTITUDE SCALE

Below are a series of statements about women in sport. You are asked to read them and then indicate your response (agree/disagree) by CIRCLING the word. There is no time limit. TRY to give an accurate and thoughtful response to ALL statements. THANK YOU.

- agree/disagree Women's sport programs should be comparable to the men's program.
- agree/disagree Highly skilled women athletes deserve to have highly qualified coaches.
- agree/disagree Women who participate in sports develop masculine mannerisms.
- agree/disagree Males and females should not participate on the same teams no matter what the sport.
- agree/disagree The female athlete can never be as good as a male athlete.
- agree/disagree Differences in strength, endurance, and other physical abilities, make women inferior athletes to men.
- agree/disagree Every individual, regardless of sex should have the opportunity to develop her/his talents to their fullest.
- agree/disagree Participation in sports prepares women to deal with other competitive challenges.
- agree/disagree The competitive drive necessary for success in athletic competition in an unfeminine trait.
- agree/disagree Competition for women places too much importance on aggressiveness.