THE RELATIONSHIP BETWEEN THE WRITTEN BEHAVIOR RESPONSES OF COLLEGE FEMALES COMPETING IN SELECTED VARSITY SPORTS AND NON-PARTICIPANTS

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by

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ABSTRACT

ENLOW, Donna L.: The Relationship Between the Written Behavior Responses of College Females Competing in Selected Varsity Sports and Non-Participants

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Purpose: The purpose of the study was to investigate the relationship between human behavior and female participation in specific athletic activities as measured by the Fundamental Interpersonal Relations Orientation - Behavior (FIRO-B) scales.

Method of Research: Fifty-two female athletes who participated on one or more of the five sanctioned and supported intercollegiate athletic teams for undergraduate female students at Emporia Kansas State College (E.K.S.C.) during the 1974-1975 school year composed approximately one-half of the subjects who were used to test the hypothesis of the study. The remaining one-half of the subjects used to test the hypothesis of the study was composed of fifty-one randomly selected females who were undergraduate students at E.K.S.C. during the spring semester of the 1974-1975 school year and who did not participate on any one of the five intercollegiate athletic teams for women at the institution stated above for the given school year. Each of the 103 subjects was asked to complete the fifty-four items on the FIRO-B scales which were administered by the investigator of the study. The difference between the 103 subjects' written responses given to the fifty-four items on the FIRO-B scales was used as the test data. Analysis of variance was utilized to determine statistical significance at the .05 level.

Conclusions:

(1) Athletes express a greater need for including people in whatever they may be doing and for having people around them, as compared to non-athletes, because of their differing behavior.

(2) Athletes' need for wanting to be invited and included by more people in their "things" and activities is greater than non-athletes' need for wanting inclusion because of the behavior difference between the two groups.
(3) Athletes and non-athletes do not differ significantly in their behavior in regard to the need for controlling other people.
(4) Athletes want more control in decision-making processes, as compared to non-athletes, but athletes do not want as much control as non-athletes want over the influences on their actions. These factors are due to the difference between the two groups' behavior.
(5) Athletes and non-athletes do not differ significantly in their behavior in regard to the need for expressing affection toward others.
(6) Athletes appear to have less desire for and liking or wanting of closeness or affection from others, as compared to non-athletes, because of the differing behavior possessed by the two groups.

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Chapter 1

INTRODUCTION

This chapter has been devoted to information concerning the relationship between the behavior responses of college females who competed in selected varsity sports and college females who did not participate in varsity sports. The significance of this study, the specific statement of the problem, the purpose, the null hypothesis, and the assumptions of this study have also been discussed. The limitations and delimitations imposed on this study by uncontrolled variables, as well as terms identified as needing further clarification have been defined and included in this chapter.

THEORETICAL FORMULATION

Comprehensive reviews of studies related to the personality of athletes and their selection of specific athletic sports indicate an increasing need for additional investigation. Studies in the area of personality of athletes thus far have failed to answer many of the questions concerning the personality characteristics of those commonly referred to as athletes. Therefore, it has been suggested future investigations be pursued in other areas of human traits. Martens (22),

in discussing the new directions, referred to a statement by Rushall which suggested that perhaps investigating the behavior, instead of the personality, of athletes might provide answers regarding the various aspects of psychology in athletics.

Martens (22) stated the new avenue of behavioristic investigations in the area of sports participation has much scientific evidence to procure. Psychological factors which cause certain individuals to act differently from one another in the display of their maturity, self-assurance, masculinity and femininity, responsibility, dependability, and other behavior traits are needed. Other scientific evidence to be obtained is that which explains why athletes tend to choose only those sports areas in which they excel. Martens (22) and other sports researchers question if perhaps the behavior of an individual may not play a major role in that person's choice of activity. In turn, this brings about additional questions. One of these questions centers on the possibility of choice playing a part in the structure and development of one's behavior; possibly certain behavior demands certain sports for expression. These questions, and others related to them, need scientific answers. Martens (22) intimated the interest created by these questions is in part attributable to the recognized importance of the role individual behavior has in athletics.

Harris (17) remarked there is definitely a need for new instruments and for new techniques which assess the

mentalistic make-up of individuals within the framework of sports performance. Studies in this area have not provided any conclusive, scientific facts or answers. This is partially due to the fact the majority of the investigations have only tested generalized concepts. If progress is to be made, sports researchers need to resist examining variables which are indefinite and study those which are more defined. The majority of previous investigations have ignored observing the individual's behavior in every day situations, as well as in the sport environment where competitive and stressful situations exist. Little effort has been exerted toward measuring behavior as it relates both within and outside of sports situations. Harris (17) further added the time is obviously here for new perspectives, for both and radically different methodologies in evaluating the total situation, and for new and creative means of examining behavior in the world of sports. It is becoming increasingly more evident that movement and performance in sports are related to a multitude of human behaviors, many of which are not and have not been measured by the traditional personality trait scales. Therefore, it may be a worthy endeavor to further investigate human behavior and to study its relationship to sports activities.

Rushall and Siedentop (34) expressed

> Human behavior refers to the things that people do. Most behavior, therefore, can be seen and/or heard. As such it is . . . measurable and capable of objective analysis (34:4).

Scientific analysis of behavior is possible because of its visual and/or auditory characteristics. The science of behavior is a relatively new area of study in the field of sports, but now is the time to investigate this area with the intent of finding answers.

Rushall and Siedentop (34) further stated that certain concepts concerning the unique mentalistic make-up of individuals do not fall within the parameters of the definition of behavior. "A personality 'trait' . . . is not behavior. A trait is a hypothetical construct . . .; it cannot be observed directly (34:4)." Therefore, alluding to Rushall and Siedentop's (34) comments, personality, at this time, cannot be measured, scientifically analyzed, or defined with any degree of scientific objectivity; behavior can be. Rushall and Siedentop (34) continued by indicating through careful study and understanding of behavior, teachers and coaches can better understand, teach, and relate to those persons with whom their expertise is associated. In doing so, the teacher and coach could expedite the rate of learning and increase the level of skill performance of the individual in various physical activities.

According to Rushall and Siedentop (34), a prerequisite for effectively applying the principles of behavior to the teaching and coaching of physical skills in sports activities is to be concerned with the behavior of each individual. This must be one of the primary concerns of such professional work. If persons in these professions will focus on the

behavior of each individual with whom they are working, and do this without being concerned with hypothetical "internal" variables, then many educational arguments and structures will hopefully diminish.

One of the greatest problems in the area of sports science and coaching and teaching skills related to sports activities is the high degree of inconsistency in the results of research studies related to the mentalistic nature of those individuals who excel in the performance of sport related activities and those who do not excel. One of the reasons for these unanswered questions and inconsistent concepts and study results, according to Harris (17), is because thus far all the outcomes are hypothetical in nature and do not exist except as generalized ideas. By resorting to procedures and to explanations which require the use of unobservable and hypothetical variables, more problems have been created than solved. Harris (17) also asserted researchers in these areas have been guilty of attempting to apply a "trait" theory to a "state" situation. It is little wonder investigators continue to be confused and contradictory results, with no pattern of significance, are reported in the literature.

THE PROBLEM

Are there certain psychological demands which require a certain type of individual to be able to compete in competitive sport? Is there a difference between the behavior of

those individuals who participate in (a) competitive sport(s) and those who do not participate? These are only a few of the many questions which have created concern and need for further research in the area of sports science.

Skinner (38) stated, in reference to theory development, that what is required for adequate explanations is that theories must be expressed in the same terms and confirmed with the same method of observations as the facts for which they are said to account. It was on this basis that the behavior of female varsity athletes, representing five intercollegiate sports teams for women, and of female non-athletes was tested to determine if there is a significant difference between the written behavior responses of the two groups.

Statement of the Problem

The purpose of this study was to investigate the relationship of human behavior and participation in specific athletic sports activities as measured by the Fundamental Interpersonal Relations Orientation - Behavior (FIRO-B) scales (Appendix A, page 88). More specifically, the following question was investigated:

Is there a relationship between the written behavior responses of college female athletes who participated on the varsity field hockey, volleyball, gymnastics, basketball, and softball teams during the 1974-1975 school year at Emporia Kansas State College (E.K.S.C.) and of college female

non-athletes at the same institution during the same school year?

Hypothesis of the Study

The following hypothesis was tested in order to investigate the above question:

There is no significant relationship between the written behavior responses of college female athletes who participated on the varsity field hockey, volleyball, gymnastics, basketball, and softball teams during the 1974-1975 school year at E.K.S.C. and of college female non-athletes at the same institution during the same school year.

Significance of the Study

Martens (22) indicated there are no conclusive, scientific facts concerning an individual's behavior and that person's choice to or not to participate in competitive athletics; therefore, there is a need for further investigation in this area. Frost (14) stated answers to the numerous questions related to this subject are needed so physical educators and coaches will be able to better understand, teach, and relate to those individuals with whom their expertise is associated. Martens (22) related past investigations of personality on participants and non-participants in athletic sports activities have failed to provide answers to many of the questions involved in various aspects of psychology as they related to athletics. Perhaps investigations, which Martens proposed in reference to Rushall's comments (22), in

the area of human behavior, not personality, may provide answers to the questions being asked. It was postulated by Martens (22) that a study such as this one would be appropriate and justifiable. This study also was determined to have merit because of the limited degree of research previously done with females in sports. Referring to statements by Frost (14), the results of this study might improve teaching and coaching theories and techniques for many persons involved in the world of sports, including females.

Assumptions of the Study

The following were considered basic assumptions of this study:

1. The subjects tested gave honest responses when answering the items on the FIRO-B scales.

2. The validity, reliability (.94), and stability (.70) of the FIRO-B scales, according to Buros (5), are significant for a study such as this one, although these scales are not recommended by Buros (5) for use in counseling situations. This recommendation was made because the instrument's validity has not been documented well enough to merit use in guidance and counseling.

3. Human behavior is measurable and definable.

Limitations of the Study

The following were considered limitations of this study:

1. Current instruments used to measure human behavior are not specifically constructed for evaluating athletes, rather they are standard behavior trait scales used in clinical and experimental contexts.

2. The subjects involved in this study were selected college female varsity athletes; the selection did not include all varsity college women athletes.

Delimitations of the Study

The following were considered delimitations of this study:

1. The college female athletes involved in this study were only those who participated in one or more of the five intercollegiate varsity sports sanctioned, recognized, and supported by the athletic department of E.K.S.C. during the 1974-1975 school year. The college female athletes who participated in other highly competitive sports at this institution (tennis, golf, and track and field) during the same school year were not included in this study. These three sports had not been recognized and supported by the institution's athletic department as being a part of the total intercollegiate athletic program for the women undergraduate students enrolled at this institution. Thus, this study reflected the results of only one individual and dual sport (gymnastics) with the primary results being determined by team sports.

2. The female students who were non-athletes were randomly selected for this study from the total student body enrollment at E.K.S.C. during the spring semester of the 1974-1975 school year. Only female undergraduates who did not participate in any one of the five recognized, organized, and supported intercollegiate varsity sports teams for women at this institution were selected as subjects for this study. The female graduate students were excluded from this study because the intercollegiate athletic program's administrators for women's sports at E.K.S.C. did not consider them eligible for athletic participation within this program.

3. All 103 subjects tested in this study were within the approximate age range of seventeen to twenty-three years of age and classified as female undergraduate students from the same educational institution, E.K.S.C. Therefore, this study reflected only local results for a given age range and sex of subjects.

4. The approximate age range of seventeen to twenty-three years of age was established for this study because it was the age range which the institution's intercollegiate athletic program's administrators for women's sports at E.K.S.C. recognized for eligibility of participation within this program. Since it was desired that the total subject population for this study be of the same age group, this age restriction was also placed on the non-athletes.

5. The means used to evaluate and measure behavior in this study was the written responses given by the 103

tested subjects on the FIRO-B scales, an instrument designed to be one means of evaluating and measuring behavior. The means of observation was not used in this study to evaluate or measure behavior.

DEFINITION OF TERMS

Terms related to the sciences studying humans are frequently associated with a variety of meanings and connotations. Terms, as related to this study, have been specifically defined in this section.

Athlete

An athlete, according to Frost (14), is a member of an organized and recognized unit in athletics: varsity school teams in athletic programs, Olympic athletic teams, or professional sports teams.

Behavior

Behavior is defined by Rushall and Siedentop (34) as being the mentalistic make-up of an individual which is observable and measurable, or it is the things one does. Behavior is the degree to which one's consistent, predictive reaction patterns to various stimuli and situations in life can be observed and/or heard.

Concept

A principle or meaningful idea, often based on a pattern of items, is defined by Frost (14) as a concept.

High Levels of Athletic Competition (Varsity Sports)

This term refers to participation on an athletic team which requires the individual athlete who is a member of that particular team to possess a significant degree of motor skill(s) and ability and to accurately execute the movement pattern(s) which is required by that particular athletic sport. This is a degree of excelled competition in athletics which allows only those who possess superior athletic talent, as compared to individuals with lesser athletic ability, to participate or compete against another such team.

Kinethesis

Frost (14) defined this term as the awareness, on the part of each individual, of the position and movement of the various parts of the body as well as the body as a whole.

Mentality

Mentality is a person's mental mode or way of thought.

Personality

One's personality, as defined by Frost (14), is that individual's uniqueness which indicates that person's identity. Personality is formulated by hereditary and environmental factors. These factors are internally possessed by each individual and are well concealed.

Physical Activity

According to Martens (22), physical activity is a term which conveys that observable human movement occurs in a wide variety of settings. This term does not distinguish between, nor does it eliminate, either motor learning and/or motor performance. It does not imply a particular setting in which movement may occur or a particular purpose for movement.

State Situation

The qualities of a human being which are specifically definable, not theorized, and which are involved in the make-up of one's existence are defined by Harris (17) as the state situation of that individual. It is a known mode or condition of one's being and existence.

Social Processes Influencing Behavior

Martens (22) defined these processes as being social variables which influence one's learning and performance, including motor learning and motor performance. The processes or variables are: social facilitation, imitation and observational learning, social reinforcement, and competition.

Social Reinforcement Cues, One Form of Feedback

A stimulus given to an individual by another individual(s) which guides behavior has been defined as a social reinforcement cue for the purposes of this study. Feedback, as defined by Frost (14), is all the information which comes to an individual and which keeps the individual informed as

to his/her physical condition, current status, and progress. It includes information as to bodily movements and the position of the various body parts. For the purposes of this study, feedback is information given to an individual by another individual or individuals.

Trait

A distinguishing quality of personal character was stated by Rushall and Siedentop (34) as being a trait.

Chapter 2

REVIEW OF RELATED LITERATURE

The review of literature related to this study was divided into four parts. The first section deals with the effects of social facilitation which are relevant to behavior patterns during participation in physical activities. A coverage of how imitation and observational learning tend to influence behavior is presented in the second section. Section three deals with social reinforcement and its association with behavior as indicated by previous studies. The last section focuses on the possibility of a relationship existing between competition and behavior.

The concept of this study was that behavior determines how competitive an individual will be, particularly in high levels of athletic competition. The concept was investigated by an analysis of the written responses given by tested subjects to items on an instrument designed to measure behavior. No study was found to approach this concept in such a manner. Most of the social influence processes found in the review of literature were between either social facilitation and behavior, imitation and observational learning and behavior, or social reinforcement and behavior. The concept that

participation in high levels of athletic competition is determined by behavior appeared to be unique.

SOCIAL INFLUENCE PROCESSES ON BEHAVIOR

The first step toward understanding the phenomenon behavior determines participation in highly competitive athletic competition is linked to the results concluded in previous studies involving the social influence processes. Only by understanding the social processes involved in physical activity can aberration be scientifically examined.

Social Facilitation

The term social facilitation, as indicated by Triplett (42), was originally referred to as any increment of individual behavior resulting from the presence of another individual. The early experimental investigations in social facilitation were done in reference to this definition. The earliest study reported to have been done in this area is Triplett's (42) in 1897. The study concluded bicyclists competing against another individual consistently averaged five and fifteen hundredths seconds per mile, up to twenty-five miles, faster than those individuals racing against time. Several experimental works following that of Triplett's were concluded to have found similar facilitatory effects. Among these studies were those by Travis (41), Dashiell (10), and Allport (2).

Not all of the early investigations in social facilitation found facilitating effects to be positive, instead social impairment or inhibitory effects were observed. Among the studies indicating inhibitory effects were those conducted by Pessin (30) and Pessin and Husband (31). The researchers of these investigations pointed out social facilitation, at that time, was too narrowly defined. It provided for only one part of the influence of the presence of other individuals.

A number of the early social facilitation researchers found neither facilitatory nor inhibitory effects. According to Martens (22), there were early studies in social facilitation which were concluded as finding no difference at all between individuals performing alone or in the presence of others. Martens (22) further indicated that research in the area of social facilitation was discontinued until the mid-1960's because of the contradictory results stated in the preceding statements.

In more recent times, active interest has been restored in researching the social facilitation theory to describe the effects the presence of other individuals has upon behavior. Credit has been given to Zajonc (43) for the recent popularization of research efforts in the area of social facilitation. Zajonc reconstructed the means of research in social facilitation by involving the investigation of two classifications of interindividual influences: audience effect and coaction effect. Audience effects involve

the influence upon behavior by the presence of passive spectators, whereas coaction effects occur when an individual is involved in an activity simultaneously with other persons.

Audience effects. Zajonc (8) predicted audience effects, when learning a complex motor skill, impair a learner's initial performance as compared to an individual learning alone. Once the skill has been reasonably well learned, an individual's performance in the presence of an audience is superior to an individual performing alone. This prediction is based on the Hull-Spence theory proposal (40).

The validity of the Zajonc hypothesis has been both supported and rejected by researchers. Brief summaries have been written for some of the studies done in the area of audience effect which support the preceding statement:

Cottrell, Rittle, and Wack (9) and Ganzer (15) conducted studies using the audience paradign and verbal tasks. These researchers concluded the presence of an audience had positive effects on subjects performing verbal tasks. Thus, these studies supported the Zajonc theory. Martens (22), in discussing audience effects, alluded to a study by Rosenquist which investigated audience effect on subjects performing a rotary pursuit tracking task. This study also indicated support for the Zajonc theory.

Not all of the studies done in the area of audience effect have supported the Zajonc theory. Singer (37) used

the audience situation and a mirror tracing task in an investigation which indicated the presence of an audience impaired subjects' performance of the task involved.

Paulus and Cornelius (29) have made critical comments in reference to the Zajonc hypothesis. These comments were made based on study results concluded by these two investigators which were directly opposite of those predicted by Zajonc's theory. The results of Paulus and Cornelius' (29) study indicated positive correlations between the level of skill and the performance decrement of gymnasts performing in the spectator conditions. Such findings led these two researchers to suggest "that either the Zajonc hypothesis needs modification or the hypothesis is not applicable to performance situations (29:57)."

Coaction effects. Zajonc (8) indicated an individual's performance will be enhanced by the presence of a coactor. Similar to the fact that Zajonc's audience effect hypothesis has been both supported as well as rejected so has the coaction effect prediction. In addition, several researchers have suggested modification to this theory. The study summaries which follow support these statements:

Ader and Tatum (1) reported graduate and medical students failed to learn an electric shock avoidance task when working alone but quickly learned the task when working in pairs. Such results indicated support for the Zajonc theory (8). Likewise, the results from similar studies by

Seidman et. al. (36) and Schacter (35) favored the coaction theory by Zajonc (8).

A study by Martens and Landers (25) involved testing subjects grouped in tetrads and dyads or tested alone. The tested subjects extended one leg horizontally while sitting and held it in that position for as long as possible. The results of the study brought about a modification to Zajonc's coaction effect theory. Martens and Landers (25) predicted subjects tolerate much more pain or physical effort when in a group situation than when alone. It was noted no mention was made in reference to the term performance, the only term alluded to in Zajonc's theory, by Martens and Landers (25). The Zajonc theory modification by Martens and Landers (25) has been supported in a study by Carment and Latchford (7).

Ader and Tatum (1) investigated coacting subjects performing a nonmotor task. The results of this study provided evidence that learning was impaired when in the presence of coactors. The results of this study and one by Martens and Landers (26), which required subjects to perform a very difficult and a novel motor skill when in a dyad, triad, tetrad, or alone, stimulated these researchers to once again modify the Zajonc theory. Martens and Landers' (26) second modification to the Zajonc theory hypothesized that increasing the number of coactors results in increasing motor impairment during initial learning. The prediction has been supported by Burwitz and Newell (6).

Bird (4) investigated the effects of the presence of an audience as compared to a coaction group setting during performance of a hand-steadiness and a manual dexterity task. The findings of this study "strongly suggested that the two paradigms of audience and coaction cannot be viewed as having identical social effects (4:322)." The results further indicated no support was given to the prediction that social facilitation, either the presence of an audience or a coaction group setting, enhances performance.

The results of studies done in the area of social facilitation are many. The capability of several theoretical notions to predict behavior has been demonstrated. Paulus and Cornelius concluded: "although these results are encouraging, additional field studies . . . would be useful in examining the generality of this predictive power (29:62)."

Imitation and Observational Learning

Imitation refers to increased behavior similarity between a model and the observer of the model. Bandura stated:

> One of the fundamental means by which new modes of behavior are acquired and existing patterns are modified entails modeling and vicarious processes (3:118).

Martens (22) stated when an individual approximates personal behavior to that of a model as a way to learn some behavior, it is known as a form of imitation called observational learning. Observational learning is a special kind of learning in which the cues controlling the selection of

particular actions in behavior are social. Bandura (3) indicated learning by observation is obvious and observable.

In teaching complex motor skills, Martens (22) referred to two means of providing the information: visual cues through demonstration and verbal cues through instruction. Visual cues are more precise than verbal cues and convey information more rapidly. These factors contribute to modeling because of being an expedient way to inform a learner.

The effects of imitation and observational learning have been researched by many investigators. Many aspects of learning have been studied in correlation with imitation and observational learning. Studies done in these areas which pertain particularly to motor skill acquisition have been summarized:

Martens (22), in discussing imitation and observational learning, alluded to a study by Harney and Landers which investigated the relationship between the quality of a model's behavior and the quality of an observer's behavior. Subjects in this study observed a skillful or unskillful performance by a model who was either a teacher or peer of the subjects. The experimenters concluded subjects who observed a skilled teacher model performed substantially better than subjects who observed an unskilled teacher model. These results were consistent with those of Zentall and Levine (44).

Martens (22) continued by stating a matter of particular interest in the field of physical education: Does additional modeling facilitate learning more than trial-and-error practice? Hillix and Marx (18), Rosenbaum and Schultz (33), and Rosenbaum (32) have researched this area of interest. The results of these studies showed superior performances when subjects learned a task with modeling procedures as compared to trial-and-error practice only.

The findings of the studies stated above, according to Martens (22), led to another question in physical education: In what types of motor skill is learning most likely to be facilitated by modeling? Sheffield (20) stated the tasks in which demonstration is most beneficial are complex motor tasks requiring a series of sequentially performed motor responses. Sheffield (20) further explained modeling helps the observer form a plan for executing motor responses. Complex motor plans are ordinarily required in the execution of skills having complex or difficult responses. Thus, complex responses performed by an individual should benefit more from modeling than tasks that have simple motor plans.

A study by Morgan (27) investigated a comparison of verbal and visual cues in teaching beginning swimming. Subjects in this study were selected for one of four treatment groups: verbal cues, verbal cues and videotape feedback. videotape feedback, and control. Results indicated improvement in both speed and power by only those subjects who

received videotape feedback. Thus, the study results were in harmony with previous studies done in this area.

No study was found by this researcher which indicated learning is impaired by initation or observational learning. Each researcher(s) of the study summarized above had indicated more studies are needed in these areas because further answers cannot be given to the question: In what types of motor skills is learning facilitated by modeling? Flanders (12) commented much of an individual's behavior is learned and this has a tremendous impact on performing physical activities; thus, the role of behavior in sport performance may be significant.

Social Reinforcement

Martens (22) stated social reinforcement, a form of feedback, is a neutral term referring to a means of increasing the strength of an individual's response to stimuli. Recent experimental evidence has shown social reinforcement affects an individual's behavior while performing motor tasks, although a number of factors mediate such influence. The following summarized studies are among those which have provided the evidence referred to in the preceding statement:

Among the early studies done in social reinforcement were those by Martens. In one particular study, Martens (21) investigated the influence of praise and reproof as internal-external control on the performance of a motor task. Results of this study failed to support the hypothesis that social

reinforcement has greater influence on the motor performance of internal control subjects than of external control subjects. Thus, it was concluded the effects of social reinforcement, separately or interactively, do not affect behavior in relation to accuracy in motor skill. These findings were similar to others concluded by Martens. In another study, Martens (24) related no significant differences were found between the types of social reinforcement used on subjects and the subject's motor behavior in a learned ball rolling skill. A third study by Martens (23) indicated similar negative results.

Recent attempts have been made to explain the similarities in Martens' early study results in the area of social reinforcement. Martens (22) stated it seemed the information conveyed by praise and reproof was not useful to the subject in modifying behavior when visual and kinesthenic feedback provided more precise and useful information to the subject than did the feedback provided by social cues. Thus, social reinforcement must have been only informationally redundant in these situations. Martens (22) concluded by speculating individual task performers should be kept uninformed about their performance results; otherwise, social reinforcements will not be effective because the individuals will be motivated as a result of intrinsic task properties. Hypothesized by Martens (22) was that social reinforcement has little direct influence on performers of motor tasks when visual and kinesthenic means of feedback are also available

In addition to the early studies done by Martens in the area of social reinforcement, more recent investigations have been conducted. Examined in a study by Harney and Parker (16) were the effects of positive, negative, and conversation-control social reinforcement on a gross motor accuracy task. Both male and female subjects were tested in this study. The only significant results found were male subjects in the positive and negative social reinforcement treatment groups performed better than males in the conversation-control condition.

Smoll (39) and Lloyd (19) have also conducted studies in the area of social reinforcement. Smoll (39) found the more precise social reinforcement in the higher the level of performance. Lloyd (19) reported social reinforcement aids performance in endurance tasks. The latter two studies were done in respect to Martens' hypothesis; that is, the subjects did not receive visual or kinesthenic feedback. Only social reinforcement was given to the subjects in Smoll's (39) and Lloyd's (19) study.

Limited research in the area of social reinforcement as it relates to motor performance has resulted in a request by Martens (22) for additional research in this area. Also each researcher whose study results were summarized in this section has stated more investigation is needed. Presently, more generalizations than facts exist in the area of social reinforcement.

Competition

Competition in our society, athletic or non-athletic, is generally credited as being a potent agent and as having a significant influence on behavior. Although it has been stated behavior has a relationship to competition in sports, Martens (22) indicated this is still to be scientifically verified. Most of the viewpoints held today concerning the relationship between behavior and competition are, according to Martens (22), those which have been largely perpetuated by writers of popular journals. Martens (22) further stated almost always these viewpoints are based on limited observation, experiences, or discussions with participants and observers; rarely are these viewpoints based on any scientific evidence. Knowledge of why an individual competes is incomplete.

Rushall and Siedentop (34) inferred the competition process requires an individual to have the capacity to direct behavior consistently toward an abstract standard or remote goal. The little experimental evidence on the development of a competitive disposition comes from the work of Madsen and his colleagues as indicated by Nelson and Kagan (28). These investigators focused primarily on cross-cultural studies to determine how children in our society differ from other societies in competitiveness. The work of these researchers showed Anglo-American children were more competitive than Mexican children, but urban children in Canada, Holland, Israel, and Korea were all similarly competitive to

Anglo-American children. Rural children in all cultures were less competitive than urban children. One explanation offered for these differences was how these children were reinforced or rewarded if they succeed or did not succeed. A study by Freischlag (13) supported the idea that reward and competitive behavior are positively related.

Martens (22) stated much research has been directed toward understanding the performance effects in competition, but mainly speculation exist when considering the intrapersonal and interpersonal effects. The latter two effects have been described by Martens (22) as follows: the intrapersonal dimensions are those which involved such factors as attitudes, motives, and personality and behavior dispositions, whereas the interpersonal effects are those which influence the relationship and personal exchange between two or more individuals. In general, Martens (22) stated many questions exist in relation to behavior and competition; much remains unknown at this time. More specific and scientific work is needed in the area of competitive situations.

SUMMARY

Evidence has been reviewed which gives scientific support that three of the four social processes are related to behavior: social facilitation energizes behavior, modeling directs behavior, and social reinforcement both energizes and directs behavior. Behavior is an individual's observable and measurable reaction pattern(s) to various

stimuli and situations in life, according to Rushall and Seidentop (34). Both stimuli and various life situations have been examined.

Physical activity performance, particularly in sports, is the result of complex motor and mental actions which combine in various ways. Both causes and effects of physical activity performance have been investigated. Actual physical activity performance is influenced by the amount and type of stimuli and by the motor reactions to the stimuli.

The phenomenon that behavior and the fourth social influence process, competition, may have a positive relationship has recently been introduced. The purpose of this study was to determine the nature of the hypothesized relationship between behavior and participation in high levels of athletic competition. Reference has been made by sport researchers suggesting the relationship between behavior and competitive sport(s) participation, thus justifying this study.

The links between behavior and participation in highly competitive sports have been moderately researched. This situation leads to only hypotheses in this area. Should these hypotheses be verified, the results would be of importance to athletic coaches. Current literature is unable to provide the necessary facts to support or to refute such beliefs. Thus, it is important to continue to search for

the nature of the relationship between behavior and participation in highly competitive sport events.

Chapter 3

METHODS AND PROCEDURES

A description of the methods and procedures used to investigate the question concerning the behavior responses of female athletes and non-athletes has been discussed in this chapter. The design of the study and the testing instrument used in this research have also been described. The population involved, as well as the sampling procedures used have been presented. In addition, the means of data collection and the methods used for statistical analysis of the data have been included in this chapter.

DESIGN OF THE STUDY

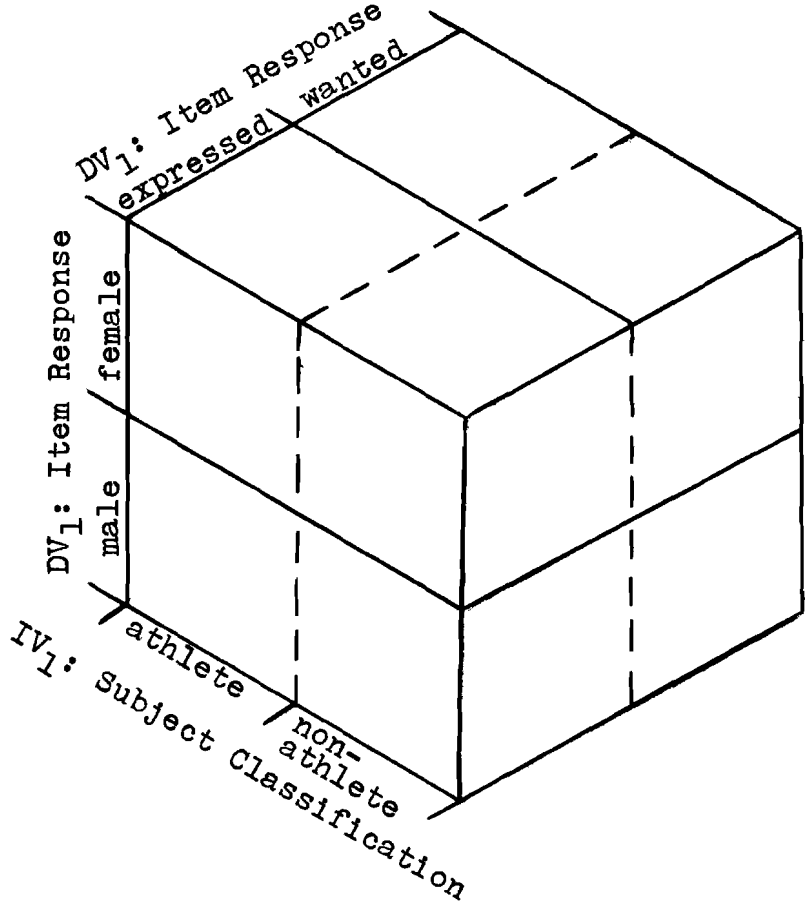
This study was designed to investigate the relationship of human behavior and participation in specific athletic sports activities. At the outset of this research, it was assumed and determined that the FIRO-B scales would measure and identify the subject's behavior, regardless of that subject's relationship with athletics. Based on this premise, it was determined that this study would serve as a means of determining the relationship between the behavior of varsity female athletes in field hockey, volleyball, gymnastics, basektball, and softball and of female non-athletes.

Three variables were presented and dealt with in this study. The independent variable in this investigation was of two levels. Level I was the group of fifty-two female undergraduate students enrolled at E.K.S.C. during the 1974-1975 spring semester, and who participated in one or more of the five intercollegiate sports sanctioned and supported by the athletic department of this institution during the stated school year. Level II was the group of fifty-one female undergraduate students enrolled at this same institution during the same school year as stated above but who did not participate in any of the five intercollegiate sports recognized by this institution. The behavior response of these 103 female subjects, the dependent variable, was measured by the FIRO-B scales. The sex, female, of all subjects in this study was used as the control variable.

The overall design of this study might be described as a 2 x 2 x 2 design with respect to the variables involved. This design has been illustrated in the diagram presented on page 33.

INSTRUMENTATION

The FIRO-B scales were used in order to obtain data considered pertinent to this comparative study. The questions of this instrument were designed to assess the subject's expressed behavior and wanted behavior. Expressed behavior was interrupted as the behavior which the tested subject



IV: independent variable

DV: dependent variable

Figure 1

Three-Dimensional Diagram of the Selected Variables Studied

directed toward others; wanted behavior reflected the behavior that the subject wanted others to display.

Separate subscales of the FIRO-B scales were constructed to determine the three interpersonal needs of all individuals. These three needs are: inclusion, control, and affection. This structure of the FIRO-B scales made it possible to assess six aspects of each subject's behavior: inclusion (expressed, wanted); control (expressed, wanted); and affection (expressed, wanted).

According to Buros (5), the FIRO-B scales, developed by William C. Schutz in 1957, have a reliability value (internal consistency/reproducibility index) of .94. The stability (test-retest correlations) of the instrument is .70. Also all subscales are of a sufficient correlation, ranging from .06 to .49. Thus, this instrument merits being used in research investigations although its validity has not been well documented as of date.

POPULATION AND SAMPLING

A total of 192 female students, all undergraduates, enrolled during the spring semester of the 1974-1975 school year at E.K.S.C. were selected as subjects for this study. These subjects were chosen on the bases of their relationship to participation on the five sanctioned and supported intercollegiate varsity athletic teams for women at E.K.S.C. Thus, the 192 female undergraduate students were selected on the bases of their participation in intercollegiate sports:

athlete and non-athlete. Undergraduate classification, marital status, subject's academic major, and other similar factors, with the exception of age, were not considered in this study.

The total number of female students who participated in one or more of the five intercollegiate varsity sports for women at E.K.S.C. during the 1974-1975 school year was sixty-four. This number included all athletes regardless of their affiliation with the varsity or junior varsity athletic team(s) or how much actual competitive playing time they were involved in during the sport season. All of the female athletes, sixty-four, were sent a letter (Appendix B, page 94). by the researcher asking each of them to participate in this study. The decision to send the letter to each of these athletes was made because of the relatively small number (sixty-four) of athletes who participated in the women's intercollegiate sports program at E.K.S.C. during the 1974-1975 school year. Therefore, this procedure, which was explained in the preceding statements, was done in order to have an adequate sampling of subjects, fifty or more, who were classified as athletes.

One hundred twenty-eight students who were undergraduate female students at E.K.S.C., and who did not participate in any of the five intercollegiate varsity sports for women at this institution were randomly selected to be subjects in this study. This selection was made from the total number of names of graduate and undergraduate students,

approximately 5,611 names, listed in the 1974-1975 Campus Telephone Directory for E.K.S.C. This list was compiled from the total student body enrollment, graduates and undergraduates, at E.K.S.C. at the beginning of the 1974-1975 school year.

It was desired that the total number of subjects for this study include approximately the same number of athletic and non-athletic subjects. Fifty subjects from each subject group was the minimum number of individuals to be tested. Therefore, 128 non-athletes, who were female undergraduates, were randomly chosen from the total list of names of students in the 1974-1975 E.K.S.C. telephone directory. This excess number of possible subjects was due to the acknowledgement of the assumption that approximately one-half of the total number of non-athletes who were randomly selected and asked to participate in this study would not be present at either testing session on May 7, 1975 or available for any individualized time period in which the test questions could be completed. Thus, over twice the number of subjects determined to be needed, fifty, in this study received the researcher's letter.

The name and address of the non-athletes in this random sample were obtained by choosing every forty-fourth person's name listed in the telephone directory referred to in preceding statements. The number forty-four was determined by dividing the total number of names listed in the previously referred to telephone directory, which was approximately 5,611

names, by the total number of non-athletes previously determined to be contacted for this study. The result was 128 names. If every forty-fourth person's name listed in the telephone directory did not qualify for being selected as a subject in this study, the next person's name down the list was selected. An individual's name was not chosen if the individual was a male or female graduate student, a male undergraduate, or a female undergraduate who was previously determined as being one of the sixty-four female athletes eligible for this study. Regardless of the previous person finally chosen as a subject for this study, every forty-fourth person's name listed in the directory was the original name to be considered in this random sample. Once the name of the subject, athlete or non-athlete, was selected each of these individuals was sent the same letter by the researcher.

DATA COLLECTION

The number and means of securing female undergraduate subjects for this study was determined after the researcher found a testing instrument appropriate and relevant to the type of investigation to be done. Once this instrument, the FIRO-B scales, was found and determined to be satisfactory, the total sample size was determined. These steps were then followed by sending a letter to all subjects who had been selected to be a participant in this study. The letter presented the recipient with general information concerning the

testing instrument and the study itself. In addition, the selected subjects were informed of the time, place, and date they were to meet and complete the fifty-four items on the FIRO-B scales used in this study.

The administration of the FIRO-B scales to the subjects selected for this study was completed in approximately eight to fifteen minutes. All participants who took this test were given the same general directions and information prior to answering the fifty-four items assessing behavior. The anonymous responses of the 103 subjects to the fifty-four items on the FIRO-B scales were collected and analyzed for the data of this study.

DATA ANALYSIS

The data in this study were based on the number of responses to each item on the FIRO-B scales. For analysis of these data, a non-parametric statistical tool, chi-square (Appendix C, page 97), was utilized to determine if there were significant differences between the responses given (dependent variable) to each item on the FIRO-B scales by the two groups of undergraduate female students in this study: athletes and non-athletes (independent variable). In addition, the contingent coefficient (Appendix C, page 101) was calculated to determine the degree of relationship that existed between the independent and dependent variables. The .05 level of significance was selected for this study to test the null hypothesis.

Chapter 4

ANALYSIS OF DATA

This study was primarily designed to investigate the written behavior responses of female athletes and non-athletes who were undergraduate college students within the approximate age range of seventeen to twenty-three years of age. The necessary information for this study was obtained by administering the FIRO-B scales to the 103 subjects involved in this study. The results of this study have been discussed in this chapter. This chapter, for additional clarification purposes, has been divided into two sections: the analysis of respondents and the statistical analysis of the subjects' responses.

RESPONSE ANALYSIS

There was a total of 192 subjects originally selected for this study. A total of 103 subjects responded to the items on the FIRO-B scales; this number, 103, represented 53.6 percent of the original sample. Seventy-three subjects completed the fifty-four test items on the FIRO-B scales on May 7, 1975 during one of the two schedule testing periods most convenient for them. The remaining thirty subjects responded to the fifty-four test items during an individualized time period within the week following May 7, 1975.

Once the number of tested subjects, athlete or non-athlete, reached the number of subjects determined as being sufficient for an adequate sample size, fifty or more, the administration of the instrument ceased. Therefore, twelve of the sixty-four athletes and seventy-seven of the 128 non-athletes were not contacted again after the initial contact by letter.

STATISTICAL ANALYSIS

The fifty-four items on the FIRO-B scales, which included six subscales, were responded to by fifty-two female athletes and fifty-one female non-athletes. The chi-square test and the *t*-test were the most appropriate statistical tools for analyzing the 103 subjects' responses given to the FIRO-B test items. A third calculation, the contingency coefficient, was obtained to determine the degree of relationship between the independent and dependent variables. The analysis of these responses has been made according to the separate FIRO-B subscales as indicated in this section.

Expresses Inclusion Subscale

The chi-square test was used to determine if a significant relationship existed between the female athletes and non-athletes' written behavioral responses given to items on the subscale "expresses inclusion." A significant relationship was found to exist between the two groups' written responses given to one of the items on the previously stated

subscale. The item, where significantly different responses were obtained, has been discussed as follows:

Item number eleven. I try to have people around me 1) usually, 2) often, 3) sometimes, 4) occasionally, 5) rarely, or 6) never.

It was found that thirty-six athletes and thirty-two non-athletes responded to item eleven by expressing the interpersonal need for inclusion, while sixteen athletes and nineteen non-athletes did not express this need. From the sixty-eight positive responses, thirty-three (48.5 percent) of the subjects answered "usually;" thirty-five (51.5 percent) of the respondents answered "often." The chi-square table of observed and expected frequencies has been shown in the table below, Table 1.

Table 1

Chi-Square and Contingency Coefficient Values Determined from the Sixty-eight Responses of the Subjects to Item Number Eleven with Respect to Athletic Participation

Subject's classification	Response Number 1	2	Total
Athlete	22*(17.47)**	14(18.53)	36
Non-athlete	11(15.53)	21(16.47)	32
Total	33	35	68

*O_f = observed frequency

**E_f = expected frequency

$\chi^2 = 4.85$
df = 1
C = 0.26

A chi-square value of 4.85 was calculated from the statistical analysis of item eleven. Using one degree of

freedom (d.f. = 1), the tabled value of $\chi^2 \geq 3.84$ was needed to reject the null hypothesis at the .05 level of significance. Therefore, rejection of the null hypothesis was warranted since the obtained value of chi-square was greater than the tabled value.

It was concluded that the observed frequencies differed significantly from the expected frequencies. This discrepancy was too great to be attributed to only chance. There was a significant relationship between the independent variable (the subjects) and the subjects' response (the dependent variable) to item number eleven. The degree of relationship between these two variables, as determined by the contingency coefficient, was 0.26 (C = 0.26).

It can be observed in the preceding chi-square table, Table 1, that the discrepancy between the observed and expected frequencies would be attributed to the behavior of the subjects. Athletes indicated that they include people in whatever they may be doing and have people around them more often than the non-athletes indicated.

$\underline{\chi^2 \text{ summary}}$. A summary of the chi-square analysis, along with the item number and statement, has been tabulated in the following table, Table 2. The following tabulations were done with respect to the subscale discussed in this section, the "expresses inclusion" subscale.

Table 2

Summary Table of Item Statements, Number of Responses With Corresponding Degree of Freedom, Chi-Square, and Contingency Coefficient Value With Respect to the Subscale "Expresses Inclusion"

Item number	Statement	Total response	df	χ^2	C
1	I try to be with people	103	2	0.14	0.04
3	I join social groups	94	3	2.83	0.17
5	I tend to join social organizations when I have an opportunity	91	3	6.14	0.25
7	I try to be included in informal social activities	90	2	1.57	0.13
9	I try to include other people in my plans	85	1	1.71	0.14
11	I try to have people around me	68	1	4.85*	0.26
13	When people are doing things together, I tend to join them	103	1	1.17	0.11
15	I try to avoid being alone	91	4	1.93	0.14
16	I try to participate in group activities	76	4	7.13	0.29

*Significant at the .05 level (See Appendix C, page 99.)

t-test for the subscale "expresses inclusion." The t-test was used in addition to the above chi-square test to further determine if a significant difference existed between the female athletes and non-athletes' written behavioral responses given to items on the subscale "expresses inclusion." The mean score on the subscale "expresses inclusion" for all athletes' responses given to this subscale was found to be 19.50, whereas the mean score for all

non-athletes' responses given to this subscale was 23.04. The mean difference between the two groups' responses was 3.54. These scores have been shown in the following table, Table 3.

Table 3

A Comparison of the "Expresses Inclusion" Subscale Responses for Athletes and Non-Athletes

Group	Number	Standard deviation	Mean score	t
Athletes	52	4.43	19.50	3.40*
Non-athletes	51	5.91	23.04	

*Significant beyond the .01 level (See Appendix C, page 100.)

A t-value of 3.40 was calculated from the analysis of variance of the 103 subjects' responses given to the nine items included in the subscale "expresses inclusion." The table value of $t \geq 2.66$ was needed to reject the null hypothesis at the .01 level of significance. Thus, since the obtained value of t was greater than the tabled value, rejection of the null hypothesis was warranted. This analysis further verified that athletes expressed a greater need for including people in whatever they may be doing and for having people around them as compared to non-athletes.

Wants Inclusion Subscale

The chi-square test was used to determine if a significant relationship existed between the written behavioral responses given by female athletes and non-athletes to items

on the subscale "wants inclusion." A significant relationship was found to exist between the two groups' written responses given to two items on the previously stated subscale. The following discussion presents information concerning the two items on the "wants inclusion" subscale which were responded to significantly different by the study's subjects:

Item number twenty-eight. I like people to invite me to things 1) most people, 2) many people, 3) some people, 4) a few people, 5) one or two people, or 6) nobody.

The interpersonal need of wanting to be included was indicated by forty-two athletes and forty-one non-athletes. Ten athletes and ten non-athletes responded to item twenty-eight by stating that they did not want to be invited (included) by others in their "things." Forty-two (51.6 percent) subjects, who gave an affirmative response, answered "most people," while forty-one (49.4 percent) of the affirmatively responding subjects answered "many people." Table 4, page 46, shows the chi-square table of observed and expected frequencies for item number twenty-eight.

The statistical analysis of item twenty-eight produced a calculated chi-square value of 4.35. A tabled value of $\chi^2 \geq 3.84$, using one degree of freedom, was needed to reject the null hypothesis at the .05 level of significance. Since the obtained value of chi-square was greater than the tabled value, rejection of the null hypothesis was warranted.

Table 4

Chi-Square and Contingency Coefficient Values Determined from the Eighty-three Responses of the Subjects to Item Number Twenty-eight with Respect to Athletic Participation

Subject's classification	Response number 1	2	Total
Athlete	26*(21.25)**	16(20.75)	42
Non-athlete	16(20.75)	25(20.25)	41
Total	42	41	83

*O_f = observed frequency

**E_f = expected frequency

$\chi^2 = 4.35$
df = 1
C = 0.22

The observed and expected frequencies were concluded to have differed significantly from each other. Chance alone was eliminated as being attributable to this discrepancy. A significant relationship existed between the independent variable (the subjects) and the subjects' responses (the dependent variable) to item twenty-eight. The contingency coefficient, 0.22, was used to determine the degree of relationship between the independent and dependent variables of item twenty-eight.

The discrepancy between the observed and expected frequencies, which can be observed in the above chi-square table, Table 4, was attributed to the subjects' behavior. Non-athletes indicated they do not want to be invited to (included in) "things" by as many other people as athletes indicated.

Item number thirty-four. I like people to include me in their activities 1) most people, 2) many people, 3) some people, 4) a few people, 5) one or two people, or 6) nobody.

Forty athletes and thirty-nine non-athletes indicated they liked (wanted) to be included by other people in their activities, whereas twelve athletes and twelve non-athletes expressed they did not like (want) to be included by many people in their activities. The answer "most people" was given by 50.6 percent of the respondents (forty subjects), while thirty-nine (49.4 percent) of the subjects responded with the answer "many people." The observed and expected frequencies for item thirty-four have been shown in the table below, Table 5, which is the chi-square table containing the frequencies of this item.

Table 5

Chi-Square and Contingency Coefficient Values Determined from the Seventy-nine Responses of the Subjects to Item Number Thirty-four with Respect to Athletic Participation

Subject's classification	Response number 1	9	Total
Athlete	25*(20.25)**	15(19.75)	40
Non-athlete	15(19.75)	24(19.25)	39
Total	40	39	79

*O_f = observed frequency

**E_f = expected frequency

$\chi^2 = 4.57$
df = 1
C = 0.23

A calculated chi-square value of 4.57 was obtained from the statistical analysis of item thirty-four. The rejection of the null hypothesis at the .05 level of significance, using one degree of freedom, required a tabled value of $\chi^2 \geq 3.84$. The null hypothesis was rejected since the obtained value of chi-square was greater than the tabled value.

A significant difference was found to exist between the observed and expected frequencies of item thirty-four. This difference was too great to be credited to chance alone. The independent variable (the subjects) and the dependent variable (the subjects' responses) had a significant relationship in reference to item thirty-four. The degree of relationship between the independent and dependent variables, as determined by the contingency coefficient, was 0.23.

The subjects' behavior was designated as being the discrepant factor between the observed and expected frequencies of item thirty-four. This discrepancy can be observed in the preceding table, Table 5, page 47. Based on the results obtained from item thirty-four, it was found that athletes like (want) to be included by more people in their activities than non-athletes like (want) to be included. The preceding statement was made in regard to the responses given by the tested subjects of this study.

χ^2 summary. A summary of the chi-square analysis, along with the item number and statement, has been tabulated

in the following table, Table 6. The following tabluations were done with respect to the subscale discussed in this section, the "wants inclusion" subscale.

Table 6

Summary Table of Item Statements, Number of Responses With Corresponding Degree of Freedom, Chi-Square, and Contingency Coefficient Value With Respect to the Subscale "Wants Inclusion"

Item number	Statement	Total response	df	χ^2	C
28	I like people to invite me to things	83	1	4.35*	0.22
31	I like people to invite me to join in their activities	73	1	1.10	0.12
34	I like people to include me in their activities	79	1	4.57*	0.23
37	I like people to ask me to participate in their discussions	74	3	1.80	0.15
39	I like people to invite me to participate in their activities	58	2	4.36	0.26
42	I like people to invite me to things	83	1	2.62	0.17
45	I like people to invite me to join their activities	79	1	0.99	0.11
48	I like people to include me in their activities	81	1	1.52	0.14
51	I like people to invite me to participate in their activities	81	1	0.19	0.05

*Significant at the .05 level (See Appendix C, page 99.)

t-test for the subscale "wants inclusion." An additional test, the *t*-test, was conjuctively used with the above chi-square test to further determine if a significant difference existed between the female athletes and non-athletes' written behavioral responses given to the items on the subscale "wants inclusion." A mean score of 16.31 was found for all the athletes' responses given on the subscale "wants inclusion." The mean score for all non-athletes' responses given on this subscale was calculated to be 19.35. A mean difference of 3.05 was found to exist between the two groups' responses given on the subscale "wants inclusion." The following table, Table 7, on page 51, shows these scores.

A *t*-value of 2.14 was calculated from the analysis of variance of the 103 subjects' responses given to the nine items included in the subscale "wants inclusion." The table value of $t \geq 2.00$ was needed to reject the null hypothesis at the .05 level of significance. Therefore, rejection of the null hypothesis was warranted since the obtained value of *t* was greater than the tabled value. This analysis further verified, when comparing the two groups' responses, that athletes indicated a greater need for wanting to be invited and included by more people in their "things" and activities than did the non-athletes.

Table 7

A Comparison of the "Wants Inclusion" Subscale Responses for Athletes and Non-Athletes

Group	Number	Standard deviation	Mean score	t
Athletes	52	6.18	16.31	2.14*
Non-athletes	51	8.02	19.35	

*Significant at the .05 level (See Appendix C, page 100.)

Expresses Control Subscale

The chi-square value and the t-value, along with the contingency coefficient, were calculated for the nine items on the subscale "expresses control." It was statistically determined, based on the three statistical factors mentioned in the preceding statement, that no significant difference existed between the written behavioral responses given to each of the nine items on the subscale "expresses control" by the female athletes and non-athletes of this study. Therefore, it was concluded that the two groups did not differ significantly in their need for expressing control toward other persons.

χ^2 summary. A summary of the chi-square analysis, along with the item number and statement, has been tabulated in the following table, Table 8. The following tabulations were done with respect to the nine items on the subscale "expresses control."

Table 8

Summary Table of Item Statements, Number of Responses With Corresponding Degree of Freedom, Chi-Square, and Contingency Coefficient Value With Respect to the Subscale "Expresses Control"

Item number	Statement	Total Response	df	χ^2	C
30	I try to influence strongly other people's actions	103	1	0.48	0.07
33	I try to take charge of things when I am with people	103	1	0.50	0.07
36	I try to have other people do things the way I want them done	85	3	1.04	0.11
41	I try to be the dominant person when I am with people	76	3	2.12	0.16
44	I try to have other people do things I want done	103	1	0.79	0.09
47	I try to influence strongly other people's actions	103	1	0.86	0.09
50	I try to take charge of things when I am with people	103	1	0.23	0.05
53	I try to have other people do things the way I want them done	95	3	7.04	0.26
54	I take charge of things when I am with people	97	3	1.61	0.13

For level of significance, see Appendix C, page 99.)

t-test for the subscale "expresses control." The t-test was used in addition to the above chi-square test to further determine if a significant difference existed between the female athletes and non-athletes' written behavioral

responses given to the nine items on the subscale "expresses control." The results obtained from this test, the t-test, further verified, when comparing the two groups' responses given to the items on the subscale previously stated in this section, that no significant difference existed between the female athletes and non-athletes' need for expressing control toward other persons. The following table, Table 9, indicates the statistical results which were obtained from the subjects' responses given to the items on the "expresses control" subscale when using the t-test.

Table 9

A Comparison of the "Expresses Control" Subscale Responses for Athletes and Non-Athletes

Group	Number	Standard deviation	Mean score	t
Athletes	52	7.76	34.44	0.72
Non-athletes	51	7.51	33.35	

A t-value of 2.00 is required for significance at the .05 level.

Wants Control Subscale

The chi-square test was used to determine if a significant relationship existed between the female athletes and non-athletes' written behavioral responses given to items on the subscale "wants control." A significant relationship was found to exist between the two groups' responses given to two of the nine items on the subscale discussed in this section. The two items, where significantly different responses were obtained, have been discussed as follows:

Item number two. I let other people decide what to do 1) usually, 2) often, 3) sometimes, 4) occasionally, 5) rarely, or 6) never.

It was found that fifty-one athletes and forty-nine non-athletes responded to item two by indicating a "want" for the interpersonal need of control, while one athlete and two non-athletes did not express a desire for control. From the one hundred positive responses, seven (7.0 percent) of the subjects answered "usually," twenty-three (23.0 percent) of the respondents answered "often," fifty-nine subjects (59.0 percent) gave the response "sometimes," and eleven (11.0 percent) of the one hundred respondents answered "occasionally." The chi-square table of observed and expected frequencies has been shown in the table below, Table 10.

Table 10

Chi-Square and Contingency Coefficient Values Determined from the One Hundred Responses of the Subjects to Item Number Two with Respect to Athletic Participation

Subject's classification	Response number 1	2	3	4	Total
Athlete	0*(3.57)**	15(11.73)	31(30.09)	5(5.61)	51
Non-athlete	7(3.43)	8(11.27)	28(28.91)	6(5.39)	49
Total	7	23	59	11	100

*O_f = observed frequency

**E_f = expected frequency

$\chi^2 = 9.34$
df = 3
C = 0.29

A chi-square value of 9.34 was calculated from the statistical analysis of item two. Using three degrees of freedom, the tabled value of $\chi^2 \geq 7.82$ was needed to reject the null hypothesis at the .05 level of significance. Therefore, rejection of the null hypotehsis was warranted since the obtained value of chi-square was greater than the tabled value.

It was concluded that the observed frequencies differed significantly from the expected frequencies. This discrepancy was too great to be attributed to only chance. There was a significant relationship between the independent variable (the subjects) and their responses (the dependent variable) to item number two. The degree of relationship between these two variables, as determined by the contingency coefficient, was 0.29.

It can be observed in the preceding chi-square table, Table 10, on page 54 that the discrepancy between the observed and expected frequencies would be attributed to the behavior of the subjects. Although both subject groups indicated a desire for controlling decision-making processes, the athletes indicated they let other people decide what to do less frequently than the non-athletes indicated. Thus, the athletes of this study indicated they want more control in deciding what to do than the non-athletes indicated.

Item number six. I let other people strongly influence my actions 1) usually, 2) often, 3) sometimes, 4) occasionally, 5) rarely, or 6) never.

The interpersonal need for wanting to have control of personal actions was indicated by forty-four athletes and thirty-nine non-athletes. Eight athletes and twelve non-athletes responded to item six by stating they did not want a great deal of control of their actions; that is, the latter subjects indicated they let other people strongly influence their actions. Two (2.4 percent) of the subjects responded to item six by giving the answer "usually," while eleven (13.3 percent) of the subjects answered "often," thirty-two (38.6 percent) of the respondents answered "sometimes," and thirty-eight (45.8 percent) of the subjects responded to this item, six, by answering "occasionally." The following table, Table 11, shows the chi-square table of observed and expected frequencies for item six.

Table 11

Chi-Square and Contingency Coefficient Values Determined from the Eighty-three Responses of the Subjects to Item Number Six with Respect to Athletic Participation

Subject's classification	Response number 1	2	3	4	Total
Athlete	1*(1.06)**	7(5.83)	16(16.96)	20(20.14)	44
Non-athletes	1(0.94)	4(5.17)	16(15.04)	18(17.86)	39
Total	2	11	32	38	83

*O_f = observed frequency

**E_f = expected frequency

$\chi^2 = 9.96$
df = 3
C = 0.33

The statistical analysis of item six produced a calculated chi-square value of 9.96. A tabled value of $\chi^2 \geq 7.82$, using three degrees of freedom, was needed to reject the null hypothesis at the .05 level of significance. Since the obtained value of chi-square was greater than the tabled value, rejection of the null hypothesis was warranted.

The observed and expected frequencies were concluded to have differed significantly from each other. Chance alone was eliminated as being attributable to this discrepancy. A significant relationship existed between the independent variable (the subjects) and their responses (the dependent variable) to item six. The contingency coefficient, 0.33, was used to determine the degree of relationship between the independent and dependent variables of item six.

The discrepancy between the observed and expected frequencies, which can be observed in the above chi-square table, Table 11, was attributed to the subjects' behavior. Although both subject groups indicated a desire for controlling their personal actions, the athletes indicated they let other people influence their personal actions more frequently than the non-athletes indicated. Thus, athletes want less control over the influences on their actions as compared to non-athletes.

χ^2 summary. A summary of the chi-square analysis, along with the item number and statement, has been tabulated in the following table, Table 12. The following tabulations

were done with respect to the subscale discussed in this section, the "wants control" subscale.

Table 12

Summary Table of Item Statements, Number of Responses With Corresponding Degree of Freedom, Chi-Square, and Contingency Coefficient Value With Respect to the Subscale "Wants Control"

Item number	Statement	Total response	df	χ^2	C
2	I let other people decide what to do	100	3	9.34*	0.29
6	I let other people strongly influence my actions	83	3	9.96*	0.33
10	I let other people control my actions	78	2	0.33	0.06
14	I am easily led by people	103	1	2.85	0.16
18	I let other people decide what to do	93	3	4.92	0.22
20	I let other people take charge of things	92	3	2.27	0.16
22	I let other people strongly influence my actions	70	2	0.24	0.06
24	I let other people control my actions	78	2	3.02	0.19
26	I am easily led by people	62	1	0.08	0.03

*Significant at the .05 level (See Appendix C, page 99.)

t-test for the subscale "wants control." The t-test was used in addition to the above chi-square test to further determine if a significant difference existed between the female athletes and non-athletes' written behavioral responses

given to items on the subscale "wants control." The mean score on the subscale "wants control" for all athletes' responses given to this subscale was found to be 32.48, whereas the mean score for all non-athletes' responses given to this subscale was 33.47. The mean difference between the two groups' responses was 0.99. These scores have been shown in the following table, Table 13.

Table 13

A Comparison of the "Wants Control" Subscale Responses for Athletes and Non-Athletes

Group	Number	Standard deviation	Mean score	t
Athletes	52	5.83	32.48	0.79
Non-athletes	51	6.68	33.47	

A t-value of 2.00 is required for significance at the .05 level.

A t-value of 0.79 was calculated from the analysis of variance of the 103 subjects' responses given to the nine items included in the subscale "wants control." The table value of $t \geq 2.00$ was needed to reject the null hypothesis at the .05 level of significance. Thus, since the obtained value of t was less than the tabled value, rejection of the null hypothesis was not warranted when using the t-test. This analysis indicated there was not a significant difference between the female athletes and non-athletes' total number of written behavioral responses given to the total number of items, nine, on the subscale "wants control." Thus,

there was only a significant difference between the female athletes and non-athletes' responses given to two items on the subscale "wants control," as previously indicated by use of the chi-square test, and not a significant difference between the two groups' total number of responses given to all the items on the subscale "wants control." The latter results were obtained by using the *t*-test to analyze the subjects' responses given to the items on the subscale previously stated. Therefore, it could only be concluded that the athletes of this study indicated they want more control in deciding what to do than the non-athletes indicated, and that athletes indicated they want less control over the influences on their actions as compared to the non-athletes of this study.

Expresses Affection Subscale

The chi-square value and the *t*-value, along with the contingency coefficient, were calculated for the nine items on the subscale "expresses affection." It was statistically determined, based on the three statistical factors mentioned in the preceding statement, that no significant difference existed between the written behavioral responses given to each of the nine items on the subscale "expresses affection" by the female athletes and non-athletes of this study. Therefore, it was concluded the two groups did not differ significantly in their need for expressing affection toward other people.

χ^2 summary. A summary of the chi-square analysis, along with the item number and statement, has been tabulated in the following table, Table 14. The following tabulations were done with respect to the nine items on the subscale "expresses affection."

Table 14

Summary Table of Item Statements, Number of Responses With Corresponding Degree of Freedom, Chi-Square, and Contingency Coefficient Value With Respect to the Subscale "Expresses Affection"

Item number	Statement	Total response	df	χ^2	C
4	I try to have close relationships with people	69	1	2.54	0.19
8	I try to have close, personal relationships with people	103	1	0.01	0.01
12	I try to get close and personal with people	88	3	3.42	0.19
17	I try to be friendly to people	98	1	0.66	0.08
19	My personal relations with people are cool and distant	103	1	0.79	0.09
21	I try to have close relationships with people	103	1	0.01	0.01
23	I try to get close and personal with people	78	2	2.79	0.19
25	I act cool and distant with people	75	2	4.63	0.24
27	I try to have close, personal relationships with people	77	2	3.23	0.20

For level of significance, see Appendix C, page 99.)

t-test for the subscale "expresses affection." The t-test was used in addition to the above chi-square test to further determine if a significant difference existed between the female athletes and non-athletes' written behavioral responses given to the nine items on the subscale "expresses affection." The results obtained from this test, the t-test, further verified, when comparing the two groups' responses given to the items on the subscale previously stated in this section, that no significant difference existed between the female athletes and non-athletes' need for expressing affection toward other persons. The following table, Table 15, indicates the statistical results which were obtained from the subjects' responses given to the items on the "expresses affection" subscale when using the t-test.

Table 15

A Comparison of the "Expresses Affection" Subscale Responses for Athletes and Non-Athletes

Group	Number	Standard deviation	Mean score	t
Athletes	52	4.79	24.15	1.51
Non-athletes	51	4.64	25.57	

A t-value of 2.00 is required for significance at the .05 level.

Wants Affection Subscale

The chi-square test was used to determine if a significant relationship existed between the female athletes and non-athletes' written behavioral responses given to items on

the subscale "wants affection." A significant relationship was found to exist between the two groups' responses given to one of the items on the subscale "wants affection." A discussion presenting information concerning the items on the subscale referred to above which was found to have been responded to with significantly different responses by the subjects of this study follows:

Item number forty-three. I like people to act close toward me 1) usually, 2) often, 3) sometimes, 4) occasionally, 5) rarely, or 6) never.

Forty athletes and forty-two non-athletes indicated they usually did not want a great amount of affection from others; that is, they more frequently expressed they wanted less closeness from people and not great degrees of closeness from others. Twelve athletes and nine non-athletes expressed they usually liked for people to act close toward them; thus, the twenty-one latter subjects wanted affection to a greater degree than did the eighty-two subjects who were referred to first in this paragraph. The answer "often" was given by 45.1 percent of the respondents (37 subjects), while thirty-seven (45.1 percent) other subjects answered "sometimes." Eight (9.8 percent) of the eighty-two subjects responded to this item, forty-three, by answering "occasionally." The observed and expected frequencies for item forty-three have been shown in the chi-square table on page 64, Table 16, which contains the item's frequencies.

Table 16

Chi-Square and Contingency Coefficient Values Determined from the Eighty-two Responses of the Subjects to Item Number Forty-three with Respect to Athletic Participation

Subject's classification	Response number 2	3	4	Total
Athlete	14*(18.05)**	19(18.05)	7.(3.90)	40
Non-athlete	23(18.95)	18(18.95)	1(4.10)	42
Total	37	37	8	82

*O_f = observed frequency

**E_f = expected frequency

$\chi^2 = 6.68$
df = 2
C = 0.27

A calculated chi-square value of 6.68 was obtained from the statistical analysis of item forty-three. The rejection of the null hypothesis at the .05 level of significance, using two degrees of freedom, required a table value of $\chi^2 \geq 5.99$. The null hypothesis was rejected since the obtained value of chi-square was greater than the tabled value.

A significant difference was found to exist between the observed and expected frequencies of item forty-three. This difference was too great to be credited to only chance. The independent variable (the subjects) and the dependent variable (the subjects' responses) had a significant relationship in reference to item forty-three. The degree of relationship between the independent and dependent variables, as determined by the contingency coefficient, was 0.27.

The subjects' behavior was designated as being the discrepant factor between the observed and expected frequencies of item forty-three. This discrepancy can be observed in Table 16, page 64. Based on the results obtained from item forty-three, it was found both athletes and non-athletes want affection from others to some degree, but athletes want less affection from others as compared to non-athletes. This is, athletes do not appear to like (want) people to act too close toward them, whereas the non-athletes like (want) more of this interpersonal need.

χ^2 summary. A summary of the chi-square analysis, along with the item number and statement, has been tabulated in the following table, Table 17. The tabulations shown in the table, Table 17, were done with respect to the subscale discussed in this section, the "wants affection" subscale.

Table 17

Summary Table of Item Statements, Number of Responses With Corresponding Degree of Freedom, Chi-Square, and Contingency Coefficient Value With Respect to the Subscale "Wants Affection"

Item number	Statement	Total response	df	χ^2	C
29	I like people to act close and personal with me	103	1	2.28	0.15
32	I like people to act close toward me	103	1	0.09	0.03
35	I like people to act cool and distant toward me	66	1	0.09	0.04

Table 17 (continued)

Item number	Statement	Total response	df	χ^2	C
38	I like people to act friendly toward me	102	1	0.64	0.08
40	I like people to act distant toward me	79	1	0.03	0.02
43	I like people to act close toward me	82	2	6.68*	0.27
46	I like people to act cool and distant toward me	84	1	0.00	0.00
49	I like people to act close and personal with me	103	1	0.09	0.03
52	I like people to act distant toward me	85	1	0.13	0.04

*Significant at the .05 level (See Appendix C page 99.)

t-test for the subscale "wants affection." An additional test, the t-test, was conjuctively used with the above chi-square test to further determine if a significant difference existed between the female athletes and non-athletes' written behavioral responses given to items on the subscale "wants affection." The mean score on the subscale "wants affection" for all athletes' responses given to this subscale was found to be 31.52, whereas the mean score for all non-athletes' responses given to this subscale was 31.49. The mean difference between the two groups' responses was 0.03. These scores have been shown in the following table, Table 18, page 67.

Table 18

A Comparison of the "Wants Affection" Subscale Responses for Athletes and Non-Athletes

Group	Number	Standard deviation	Mean score	t
Athletes	52	4.79	31.52	0.03
Non-athletes	51	3.62	31.49	

A t-value of 2.00 is required for significance at the .05 level.

A t-value of 0.03 was calculated from the analysis of variance of the 103 subjects' responses given to the nine items included in the subscale "wants affection." The table value of $t \geq 2.00$ was needed to reject the null hypothesis at the .05 level of significance. Thus, since the obtained value of t was less than the tabled value, rejection of the null hypothesis was not warranted when using the t-test. This analysis indicated there was not a significant difference between the female athletes and non-athletes' total number of written behavioral responses given to the total number of items, nine, on the subscale "wants affection." Thus, there was only a significant difference between the female athletes and non-athletes' responses given to one item on the subscale "wants affection," as previously indicated by use of the chi-square test, and not a significant difference between the two groups' total number of responses given to all the items on the subscale "wants affection." The latter results were obtained by using the t-test to analyze the subjects' responses given to the items on the

subscale previously stated. Therefore, it could only be concluded that the athletes of this study indicated they like (want) people to act less close toward them as compared to the non-athletes of this study.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The first section of this chapter contains a summary of the study done by the researcher which investigated the written behavioral responses given to fifty-four items on the FIRO-B scales by fifty-two female athletes and fifty-one female non-athletes. The conclusions drawn from the statistical analysis of the subjects', who were referred to above, responses given to the items on the FIRO-B scales have been presented in the second major part of this chapter which is categorized as conclusions. The last section of this chapter presents recommendations for additional studies which may be conducted in relation to the subject area focused on by this study.

SUMMARY

The purpose of the study was to investigate the relationship between human behavior and female participation in specific athletic activities as measured by the FIRO-B scales. It was hypothesized that knowledge of such a relationship would prove valuable to athletic coaches, physical educators, and others interested in physical activities related to athletic sports and competition. Implications for better understanding, teaching, and relating to female

athletes by those individuals who associate with and/or work with female athletes added to the importance of the study.

Fifty-two of the sixty-four female athletes who participated on one or more of the five sanctioned and supported intercollegiate athletic teams for undergraduate women at E.K.S.C. during the 1974-1975 school year composed approximately one-half of the subjects who were used to test the hypothesis of the study. The remaining one-half of the subjects used to test the hypothesis of the study was composed of fifty-one females who were undergraduate students at E.K.S.C. during the spring semester of the 1974-1975 school year and who did not participate on any one of the five intercollegiate athletic teams for women at the institution stated above for the given school year. Each of the 103 subjects was asked to complete the fifty-four items on the FIRO-B scales which were administered by the investigator of the study. The responses given by the 103 subjects of the study to the fifty-four items on the FIRO-B scales were used to test the hypothesis of the study.

An analysis of variance was performed on the two subject groups' written behavioral responses given to each item on the FIRO-B scales. Significant differences were found to exist between the responses to six of the fifty-four test items at the .05 level of significance. The six items, within the indicated subscale, are as follows:

1. One of the six items, item number eleven, was within the subscale "expresses inclusion."

2. Two of the six items, numbers twenty-eight and thirty-four, were within the "wants inclusion" subscale.

3. Two other items, numbers two and six, which were found to have been responded to with significantly different responses by the 103 subjects of the study were within the subscale "wants control."

4. A sixth item, number forty-three, was within the subscale "wants affection" and was found to have been responded to with significantly different responses by the athletic and non-athletic female subjects of the study.

There were no items within the subscales "expresses control" and "expresses affection" which were found to have been responded to significantly different by the two subject groups of the study. Thus, certain item responses given by the study's subjects indicated the two subject groups' behavior was different from each other. Therefore, the null hypothesis of the study was rejected in the instances previously stated.

The hypothesis of the study was further tested by performing an analysis of variance on the mean variation between the two subject groups' responses to the nine items on each of the six FIRO-B subscales. Significant differences were found to exist between the responses given to two of the six FIRO-B subscales by the study's two subject groups. More specifically, it was found a significant difference existed at the .01 level between the two subject groups' mean response score on the subscale "expresses inclusion," while a

significant difference existed at the .05 level between the two groups' mean response score on the "wants inclusion" subscale. There were no other significantly different results found to exist between the two subject groups' mean response scores.

CONCLUSIONS

Within the limitations of the study, the following conclusions appear justified:

1. Athletes include people in whatever they may be doing and have people around them more often as compared to non-athletes. Thus, athletes express a greater need for including people in whatever they may be doing and for having people around them as compared to non-athletes. The difference between the athletes and non-athletes' need for including others is due to the difference between their behavior as indicated by the FIRO-B test.

2. Non-athletes do not want to be invited to (included in) "things" by as many other people as compared to athletes. Also, athletes like (want) to be included by more people in their activities than non-athletes like (want) to be included. Thus, the athletes' need for wanting to be invited and included by more people in their "things" and activities is greater than the non-athletes' need for wanting inclusion. This need difference between the two groups, as indicated by the FIRO-B test, is due to the difference between the two groups' behavior.

3. Athletes and non-athletes do not differ significantly in their need for controlling other people. With respect to the need for controlling other persons, the FIRO-B test indicated that athletes and non-athletes do not differ significantly in their behavior.

4. Athletes want to have more control in deciding what to do, as compared to non-athletes, but athletes do not want as much control as non-athletes want over the influences on their actions. Thus, as indicated by the FIRO-B test, there is a significant difference between athletes and non-athletes' acceptance of control from other persons. The difference in how athletes and non-athletes accept control or need control from others is due to their differing behavior, according to the FIRO-B test.

5. Athletes and non-athletes do not differ significantly in their need for expressing affection toward others. Athletes and non-athletes do not differ significantly in their behavior, as indicated by the FIRO-B test, with respect to the need for expressing affection toward other individuals.

6. Athletes appear to want less affection from others as compared to non-athletes. Athletes do not like (want) people to act too close toward them, whereas non-athletes like (want) more of this interpersonal need. The difference between athletes and non-athletes' desire for and/or need of affection from others, as indicated by the FIRO-B test, is due to their behavior.

RECOMMENDATIONS

The following recommendations for additional studies are made in regard to the findings of the present study:

1. A replication of the study should be conducted using other age levels for the sample.

2. A replication of the study should be conducted using either male and female subjects or all male subjects.

3. A replication of the study should be conducted using athletic subjects who possess a lesser degree of athletic skills and abilities than the highly skilled athletic subjects possess.

4. A replication of the study should be conducted providing another type of test instrument which measures behavior exists and/or a test instrument is specifically constructed for evaluating athletes' behavior.

5. A replication of the study should be conducted comparing the written behavior responses given by individual and dual sports athletes and by team sports athletes to items on the FIRO-B scales.

6. A replication of the study should be conducted to determine if athletes respond to items on the FIRO-B scales significantly different when compared to the number of varsity sports the individual athletes participated in per year. That is, does participation in more than one varsity sport per year fulfill an athlete's interpersonal needs more than participation in only one varsity per year?

7. A similar study using observational means instead of written means of measuring behavior should be conducted. Also, a similar study combining both written and observational means of measuring behavior should be conducted.

8. Similar studies should be conducted with the intent to improve teaching and coaching theories and techniques for all persons involved in the world of sports, especially the females.

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APPENDICES

APPENDIX A

The Test Instrument
Fundamental Interpersonal Relations
Orientation - Behavior (FIRO-B)

FUNDAMENTAL INTERPERSONAL RELATIONS ORIENTATION - BEHAVIOR

(FIRO-B)

"People Need People"
By: William C. Schutz

In what ways do people need people? Every individual has three interpersonal needs: inclusion, control, affection.

Inclusion: The interpersonal need for inclusion is the need to establish and maintain a satisfactory relation with people with respect to interaction and association. On the level of feeling, the need for inclusion is the need to establish and maintain a feeling of mutual interest with other people. . . of being able to take an interest in other people to a satisfactory degree.

Inclusion behavior refers to association between people. Some terms that connote positive inclusion are: associate, interact, mingle, communicate, belong, companion, comrade, attend to, member togetherness, join.

Lack of inclusion are: exclusion, isolate, outsiders, outcast, lonely, detached, withdrawn, abandoned, ignored.

Control: The interpersonal need for control is the need to establish and maintain a satisfactory relation with people with respect to control and power. With regard to feeling, the need for control is defined as the need to establish and maintain a feeling of mutual respect for the competence and responsibleness of others. This feeling includes being able to respect others and having others respect the self to a satisfactory degree.

Control behavior refers to the decision-making process between people. Some terms connoting a relation that is positive control are: power, authority, dominance, influence, control, ruler, superior, officer, leader.

Some negative terms for a lack of control are: rebellion, resistance, followers, anarchy, submissive, henpecked, milquetoast.

Affection: The interpersonal need for affection is the need to establish and maintain a satisfactory relation with others with respect to love and affection. Affection always refers to a two-person relation. The need for affection defined at the level of feeling is the need to establish and maintain a feeling of mutual affection with others.

Affection behavior refers to close personal emotional feelings between two persons. Terms connoting an affection relation that is positive are: love, like, emotionally close, personal, friendship.

Some terms connoting a lack of affection: hate, dislike, cool, emotionally distant.

Types:

Inclusion Types:

Oversocial: Uncomfortable when not associating with people. "Cannot stand to be alone."

Social: Well-balanced person, comfortable either in the presence or absence of others.

Under-social: Uncomfortable initiating interaction. Cannot stand being with people.

Control Types:

Autocrat: Uncomfortable when unable to control other people. Always have to be in charge.

Democrat: Well-balanced person, comfortable either controlling or not controlling people; controlled or not being controlled.

Abdicrat: Not comfortable controlling the behavior of others. Cannot tell anyone what to do.

Affection Types:

Overpersonal: Uncomfortable when not able to establish a sufficiently close, personal relation with people. Cannot get close enough.

Personal: Well-balanced person. Comfortable in a close relationship with another person or comfortable in a more distant relationship.

Underpersonal: Not comfortable when getting too close and personal with someone. Does not like to get emotionally involved with people.

The extreme types described above produce anxiety, hostility, and ambivalence. In many instances complete reversals in behavior are seen in the extreme types.

DIMENSIONS	EXPRESSED BEHAVIOR	WANTED BEHAVIOR
Inclusion	I initiate interaction with people.	I want to be included.
Control	I control people.	I want people to control me.
Affection	I act close and personal toward people.	I want people to be close with me.

Further information regarding the FIRO-B test instrument can be obtained in the following books:

1. Pfeiffer, William J., and Richard Heslin. Instrumentation in Human Relations Training. Iowa City, Iowa: University Associates, 1973.

2. Schutz, William C. The Interpersonal Underworld. 4th printing. Palo Alto, California: Science and Behavior Books, Inc., 1970.

FIRO-B SCORING

Expresses Inclusion	Expresses Control	Expresses Affection
1*---1,2,3**	30---1,2,3	4----1,2
3----1,2,3,4	33---1,2,3	8----1,2
5----1,2,3,4	36---1,2	12---1
7----1,2,3	41---1,2,3,4	17---1,2
9----1,2	44---1,2,3	19---4,5,6
11---1,2	47---1,2,3	21---1,2
13---1,2	50---1,2,3	23---1,2
15---1	53---1,2	25---4,5,6
16---1	54---1,2	27---1,2

Wants Inclusion	Wants Control	Want Affection
28---1,2	2----1,2,3,4	29---1,2
31---1,2	6----1,2,3,4	32---1,2
34---1,2	10---1,2,3	35---5,6
37---1	14---1,2,3	38---1,2
39---1	18---1,2,3,4	40---5,6
42---1,2	20---1,2,3,4	43---1
45---1,2	22---1,2,3,4	46---5,6
48---1,2	24---1,2,3	49---1,2
51---1,2	26---1,2,3	52---5,6

* - the item number .

** - possible response number(s) to the item which indicate(s) the need being assessed by the item's subscale

PERSONAL DATA

Please check the items below which apply directly to you. If you have any question, please feel free to ask for further explanation.

CLASSIFICATION:

_____Freshman

_____Sophomore

_____Junior

_____Senior

I have participated on the following E.K.S.C. 1974-1975 varsity sports team(s) for women athletes:

____Field Hockey

____Volleyball

____Gymnastics

____Basketball

____Softball

Did you participate on either, or both of, your high school's "A" or "B" team(s) for girls in inter-scholastic sport(s)? (Intramural teams are not to be considered as one of these teams.)

____ (Answer for the above question.)

If your above answer is yes, please list which sport(s) you participated in during high school.

_____

_____

_____

_____

F I R O - B

Please place the number of the answer that best applies to you on the line at the left of the statement. Please be as honest as you can.

___ 1. I try to be with people
1. usually 2. often 3. sometimes
4. occastionally 5. rarely 6. never

___ 2. I let other people decide what to do
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___ 3. I join social groups
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___ 4. I try to have close relationships with people
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___ 5. I tend to join social organizations when I have an opportunity
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___ 6. I let other people strongly influence my actions
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___ 7. I try to be included in informal social activities
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___ 8. I try to have close, personal relationships with people
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___ 9. I try to include other people in my plans
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___10. I let other people control my actions
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___11. I try to have people around me
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___12. I try to get close and personal with people
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___13. When people are doing things together, I tend to join them.
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___14. I am easily led by people
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___15. I try to avoid being alone
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___16. I try to participate in group activities
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

PLEASE BE AS HONEST AS YOU CAN

___17. I try to be friendly to people
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___18. I let other people decide what to do
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___19. My personal relations with people are cool and distant
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___20. I let other people take charge of things
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___21. I try to have close relationships with people
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___22. I let other people strongly influence my actions
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___23. I try to get close and personal with people
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___24. I let other people control my actions
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___25. I act cool and distant with people
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___26. I am easily led by people
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___27. I try to have close, personal relationships with people
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___28. I like people to invite me to things
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___29. I like people to act close and personal with me
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___30. I try to influence strongly other people's actions
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___31. I like people to invite me to join in their activities
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___32. I like people to act close toward me
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___33. I try to take charge of things when I am with people
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___34. I like people to include me in their activities
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___35. I like people to act cool and distant toward me
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___36. I try to have other people do things the way I want them done
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___37. I like people to ask me to participate in their discussions
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___38. I like people to act friendly toward me
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___39. I like people to invite me to participate in their activities
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___40. I like people to act distant toward me
1. most people 2. many people 3. some people
4. a few people 5. one or two people 6. nobody

___41. I try to be the dominant person when I am with people
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___42. I like people to invite me to things
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___43. I like people to act close toward me
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___44. I try to have other people do things I want done
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___45. I like people to invite me to join their activities
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___46. I like people to act cool and distant toward me
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___47. I try to influence strongly other people's actions
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___48. I like people to include me in their activities
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___49. I like people to act close and personal with me
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___50. I try to take charge of things when I am with people
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___51. I like people to invite me to participate in their activities
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___52. I like people to act distant toward me
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___53. I try to have other people do things the way I want them done
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

___54. I take charge of things when I am with people
1. usually 2. often 3. sometimes
4. occasionally 5. rarely 6. never

APPENDIX B

Cover Letter to Selected Subjects

EMPORIA KANSAS STATE COLLEGE
1200 COMMERCIAL / EMPORIA, KANSAS 66801 / TELEPHONE (316) 343-1200

April 29, 1975

Dear

Your assistance is being asked to help me complete my Master's thesis. I am presently an E.K.S.C. graduate in the area of physical education. I am doing my thesis on the behavioral traits of female athletes and non-athletes at the collegiate level. It is because of this that I am sending you this letter.

Fifty athletes and fifty non-athletes from E.K.S.C. will be used as the subjects in my collection of data. All E.K.S.C. females who were members of any of the five varsity sports teams, after the final "cut", are being asked to participate in the testing of this study. The fifty non-athletes were selected at random and are being urged to be subjects in this collection of information. I am asking that the non-athletes be just that. If you have ever competed in any type of highly organized and competitive sports events, such as A.A.U., Junior Olympics, etc., but have not competed in varsity athletics at E.K.S.C., I ask that you not participate in this testing.

All subjects, 100 in all, will be given the FIRO-B scales on Wednesday, May 7, 1975 at either 4:00 p.m. or 7:00 p.m., whichever time is most convenient for you. Room 204 in the E.K.S.C. Physical Education Building is where the test will be administered.

There are 54 questions on the FIRO-B scales, which will take approximately 8-15 minutes to complete. These 54 multiple-choice questions cover various aspects of one's behavior. There is no right or wrong answer to the questions. The answer is simply an honest response of your personal feelings or desires. All answers will be kept confidential, in fact, there will be no names put on any of the answer sheets.

Your participation in my study will be greatly appreciated. I ask that each of you who have been chosen

as a subject to please be in Room 204 on May 7 at either 4:00 p.m. or 7:00 p.m. Please return the enclosed self addressed post card to me at your earliest convenience.

Thank you for your cooperation and time. I will see you on May 7.

Sincerely,

Donna L. Enlow

Donna L. Enlow
Graduate Assistant

APPENDIX C

Statistical Tools Used in This Study

CHI-SQUARE (χ^2)

One of the more powerful non-parametric statistical tools used to analyze research data is the chi-square test. The value of chi-square is determined on the basis of the number of responses (observed frequencies) as compared to the number of expected responses (expected frequencies). The following formula, presented by Downie and Heath (11), was used in this study for calculating the value of chi-square:

$$\chi^2 = \sum \frac{(O_f - E_f)^2}{E_f}$$

where, $\sum$ = summation operator,

O_f = observed frequencies, and,

E_f = expected frequencies.

The observed frequencies (O_f) were simply based upon the total number of respondents in each category. The expected frequencies (E_f) for each cell were calculated on the bases of the row sums times the column sums divided by the total number of respondents (N), or E_f = (row sum) (column sum)/N.

The value obtained for chi-square was tested against a chi-square table when testing the null hypothesis. The degrees of freedom were considered when reading from the

chi-square table. The degrees of freedom were calculated by taking the number of rows minus one times the number of columns minus one, or, df = (r - 1) (c - 1).

LEVEL OF SIGNIFICANCE

The level of significance, according to Downie and Heath (11), may be interpreted as dependent upon whether the statistic (sample fact) fell within the established critical region or did not fall within this region. In general, stated Downie and Heath (11), if the obtained value of chi-square is greater than or equal to the tabled value of chi-square at the .05 level of significance, then chances are that ninety-five times out of one hundred the large obtained value of chi-square is not simply due to sampling error.

One of the following chi-square values, depending upon the degree(s) of freedom for each of the fifty-four items on the FIRO-B scales, was needed in this study to warrant rejection of the null hypothesis of this study:

1. With one degree of freedom, a tabled value of $\chi^2 \geq 3.84$ was needed to reject the null hypothesis at the .05 level of significance.

2. With two degrees of freedom, a table value of $\chi^2 \geq 5.99$ was needed to reject the null hypothesis at the .05 level of significance.

3. With three degrees of freedom, a table value of $\chi^2 \geq 7.82$ was needed to reject the null hypothesis at the .05 level of significance.

4. With four degrees of freedom, a table value of $\chi^2 \geq 9.49$ was needed to reject the null hypothesis at the .05 level of significance.

When using the *t*-test, one of the two *t* values given below was needed in this study to warrant rejection of the null hypothesis of this study:

1. A tabled value of $t \geq 2.00$ was needed to reject the null hypothesis at the .05 level of significance.

2. A tabled value of $t \geq 2.66$ was needed to reject the null hypothesis at the .01 level of significance.

THE CONTINGENCY COEFFICIENT $(C)^2$

An index of measurement which is used to determine the degree of relationship that exists between the independent and dependent variables is the contingency coefficient. The magnitude of chi-square is a function used in the determination of the contingency coefficient. The following contingency coefficient formula, given by Downie and Heath (11), was used in this study for determining the contingency coefficient value of each item on the FIRO-B scales:

$$C = \frac{\chi^2}{N + \chi^2}$$

where, χ^2 = obtained value of chi-square, and,

N = total number of respondents to each individual item.

For interpretation of the meaning of the contingency coefficient values, the comparison is analogous to calculating a Pearson Product-Moment Coefficient of Correlation (r). Like Pearson's r, the degree of relationship between the independent and dependent variables can be obtained.