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THE SOCIALIZATION EFFECT OF  
SPORT AND THE U.S. AIR FORCE FEMALE  
THESIS  
Nancy L. Halloran  
First Lieutenant, USAF  
AFIT/GLM/LSY/87S-31

DEPARTMENT OF THE AIR FORCE  
AIR UNIVERSITY

**AIR FORCE INSTITUTE OF TECHNOLOGY**

Wright-Patterson Air Force Base, Ohio

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AFIT/GLM/LSY/87S-31

THE SOCIALIZATION EFFECT OF SPORT AND  
THE U.S. AIR FORCE FEMALE

THESIS

Presented to the Faculty of the School of Systems  
and Logistics of the Air Force Institute of Technology  
Air University

In Partial Fulfillment of the  
Requirements for the Degree of  
Master of Science in Logistics Management

Nancy L. Halloran, B.S.  
First Lieutenant, USAF

September 1987

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Abstract

This research study addressed the question of whether U.S. Air Force female personnel with extensive histories of team sport participation differ from female personnel with little or no experience in organized sports. The population of interest was U.S. Air Force female personnel stationed in the continental United States.

The women in the two groups were compared on both work group behavior characteristics and personality traits. The work group behavior variables of interest were group acceptance, leadership style, goal orientation, loyalty, and degree of competition exhibited within the work group. Similarly, the personality traits investigated were as follows: achievement motivation, self-confidence, adaptability, extroversion, and the integrating and avoiding approaches to conflict resolution.

Data used in this study was collected using two different survey instruments. Each of the 28 women studied reported on her perceptions of her behavior in her work group and her personality. In addition, at least two co-workers of each female reported their observations of her on the same variables.

No statistical differences were found between the team participants and the non-participants on the variables of interest in this study. However, further comparison of the team participants with their co-workers revealed significant

differences between the two groups on the variables achievement motivation and goal orientation. Several recommendations are given for further exploration of the research questions put forth in this study.

THE SOCIALIZATION EFFECT OF SPORT  
AND THE U.S. AIR FORCE FEMALE

I. Introduction

Chapter Overview

This chapter introduces the research topic to be studied, including the background, general and specific issues, scope, and definitions. The study focuses on the commonly held belief within the military that participation in team sports positively influences an individual's ability to become a "team member." More specifically, does the socialization effect of team sport participation enhance the ability of U.S. Air Force (USAF) female personnel to become effective team members within work groups?

General Issue

Women, in both the officer and enlisted grades, comprise an increasing percentage of USAF active duty personnel. If the Air Force is to maintain a high level of readiness, these women must become integral members of their organizational units. A commonly held belief, especially within the military, is that participation in team sports or some sort of athletic competition is an important socialization process which enhances an individual's ability to become a team player. Virtually every mode of initial

military training, the service academies, Reserve Officer Training Corps (ROTC), Officer Training School (OTS), and basic training schools encourages if not requires participation in some type of organized competitive sport. While many consider the socialization process associated with participation in sports to have a positive effect on a person's interpersonal skills, surprisingly little empirical research has been conducted to substantiate this belief.

#### Specific Issue

Until the recent implementation of title IX, women have not been afforded the same opportunities as men in intercollegiate or interscholastic athletics (8:368). Moreover, those young women desiring to compete in sports have traditionally been channeled into individual athletic activities (e.g., tennis, golf, swimming, gymnastics) considered appropriate for females (9:277). The intent of this study was to determine if the socialization process which occurs through sport participation develops an individual's ability to be a "team player." If it does, then the focus of women's athletic programs may need to be reassessed.

This study compared female USAF personnel in two different categories, team sport participant and non-participant, on selected group and personality characteristics to determine if a relationship exists between an individual's history of sport participation and that individual's ability to work in a group.

## Definitions

Several terms were used throughout this research study, and therefore must be defined. The first term is personality. Although many definitions have been suggested for personality, the definition given by Eysenck was used in this study. He defines personality as, "the more or less stable and enduring organization of a person's character, temperament, intellect, and physique which determines the unique adjustment to the environment" (16:31). The terms team sport participant and non-participant refer to the degree and type of organized sports participation of each subject throughout her lifetime. Specific criteria for placement into these three categories were developed from the data collected.

## Background

As mentioned earlier, it is a commonly-held belief that participation in team sports or some sort of athletic competition is an important socialization process which influences an individual's ability to become a team player. General Douglas MacArthur once stated, "Sport is a vital character builder. It molds the youth of our country for their roles as custodians of the republic ..." (1:32). Ex-President Gerald Ford had this comment, "Broadly speaking, outside of a national character and an educated society, there are few things more important to a country's growth and well-being than competitive athletics" (1:32).

Today's American military organizations share this belief. Participation in some sort of team sport competition is mandatory in nearly every form of initial military training including the service academies, ROTC, OTS, and basic training. Games such as one-pitch softball, flickerball, and volleyball seek to teach individuals the importance of teamwork, interpersonal communications, and subordination of individual goals to group goals.

Don Calhoun, author of Sports, Culture, and Personality, defines socialization as, "the process by which we acquire personalities as functioning members of society." He implies that our personality characteristics and social qualities are not inborn; rather, we learn through experience (4:210). Sociologist Charles Horton Cooley captures the essence of the idea of social learning through play and games in this passage:

Where do we get our notions of love, freedom, justice and the like which we are ever applying to social situations? Not from abstract philosophy, surely, but from the actual life of simple and widespread forms of society, like the family or the play group. In these relations mankind realizes itself, gratifies its primary needs, . . . , and from experience derives standards of what it is to expect from more elaborate associations. Since groups of this kind are never obliterated from human experience, but flourish more or less under all kinds of institutions, they remain an enduring criteria by which the latter are ultimately judged (4:211).

Calhoun stresses that we acquire personality through socialization. Many researchers have attempted to determine if some personality characteristics are learned through

athletic participation, and if so, what specific traits do athletes acquire? In general, they seek to answer the following questions:

Do athletes have different personality profiles than non-athletes?

Does athletic participation influence the personality of the athlete?

Do female athletes differ from male athletes in personality?

Are there differences in personality dispositions between athletes participating in individual versus team sports? (16:149).

Unfortunately, the most consistent finding in the sports personology arena is that research results greatly conflict with one another. Boutilier, Cox, and Martens have all cited poor methodology as the primary cause of these results. They also suggest that the use of an atheoretical approach, poorly defined variables, and poor sampling procedures have been characteristic of sports personality research using trait theory (7:30; 2:61; 15:495). Despite trait theory's shortcomings, certain differences between athletes and non-athletes are generally accepted. For example, athletes differ from non-athletes on factors such as extroversion, anxiety, independence, and abstract reasoning (7:611).

Research studies designed to determine the personality characteristics exclusively of females participating in team

and individual sports report general findings of differences in levels of dominance, independence, anxiety, extroversion, and adventurousness (18:686; 14:610; 11:410).

Unfortunately, the overwhelming majority of the research investigating the role of athletic participation in personality development and personality characteristics of athletes has focused on the male athlete. Therefore, few questions about the female competitor have been answered. While some researchers believe that the results will be the same as for male athletes, others feel that the findings cannot be generalized unless we believe that females and males do not differ in personality, needs, and motivations (21:353).

Clearly, more research on the socialization effect of sports participation and the influence of participation on personality is needed with regard to the female athlete. McPherson states, "since socialization occurs throughout the life-cycle, it must be recognized that individuals can be socialized into sport roles beyond the adolescent years ..." (17:267). If this is true, then the Air Force could benefit from better organized sports programs for its female members. Through sports, they have the opportunity to improve their ability to work in groups, possibly improving overall group performance.

### Scope

This study was limited to the determination of the personality traits and group interaction characteristics of USAF female personnel and the comparison of these dimensions between two groups of women: team sport participants and non-participants. to reduce the possibility of confounding variables and shorten the length of the surveys used, only the characteristics discussed in Chapter II, Literature Review and Research Hypotheses, were measured.

## II. Literature Review and Research Hypotheses

### Chapter Overview

This chapter presents a review of the literature relevant to this study. Both the socialization effect of sport and findings on the personality of the athlete are reviewed.

### Socialization Effect of Sport

The sociology of sports is based largely on social learning theory. Bandura argues that most social behavior, including the learning of specific social roles, is acquired by observing the behavior of a significant other. The significant other can be an adult, a peer, an imaginary character, or a reference group. Significant others have the potential to facilitate or inhibit role learning through the values, norms, and opportunities they provide at each point in time (17:248).

Socialization of accepted norms, values, and behaviors begins early in childhood. Hall, Greendorfer, Loy, McPherson and Kenyon, and Lever have all reported the presence of unique sex differences in the socialization process. Lever explains the difference in this way; societies have different expectations for the male and female roles with respect to involvement in sport and physical activity. More specifically, each role has

different values, norms, and sanctions associated with it (17:252). Both Duquin and Lever have reported findings that support this view.

In 1977, Duquin found that young girls are seldom exposed in children's literature to females that are involved in sports. In a similar study, Lever found that girls play different and less complex games than boys in early childhood. therefore, she concluded that girls learn fewer organizational skills, such as group interaction, leadership, strategic thinking, and interpersonal competition. Several organizational studies on women in corporations suggest lower degrees of success for women in business due to a lack of experience in team sports (1:130).

Those girls who do decide to participate in sports may experience role conflict. From birth, little girls are typically handled more gently than little boys. Participation in sports is encouraged for boys and may also be for girls prior to adolescence. However, continued participation in "masculine sports" such as softball and basketball may be seen as dominant and aggressive, characteristics historically reserved for males. In 1962, Kagan and Moss conducted a longitudinal study of children in which they described this role as passive, dependent, socially anxious, and fearful of problem situations. Marie Hart studied women in southern California colleges in 1963 and found convincing evidence that females do experience some

role conflict. She sought recommendations from 200 coeds, many of whom were athletes, as to what sports they suggested young girls to enter. Surprisingly, these women generally discouraged participation in basketball, softball, and especially track and field. Instead, they recommended sports such as tennis, swimming, ice skating, diving, bowling, skiing, and golf. The researcher noted that the recommended activities were all aesthetically pleasing or fashionable for women. In particular, the primary focus of these sports was not on strength or skill (20:27).

In addition to the effect of societal norms and values on continued participation, Malumphy found that the level of family support greatly influenced further athletic participation by college women. Specifically, in 1973, McPherson reported that the mothers of female tennis players greatly influenced continued participation by their daughters. In a Canadian study of male tennis and hockey players, almost all respondents reported they had an idol that furthered their interest in athletics. However, for women the significance of family support may be even greater, since few professional female sports idols exist relative to the number of male idols (17:254).

It's encouraging to note that there seem to be fewer women experiencing role conflict between the traditional female role and the role of athlete. Unfortunately, the social stigma attached to participation in "masculine"

sports hasn't totally been erased. Much of the media still focuses on the attractiveness of the woman rather than her skill and effectiveness. For instance, Sports Illustrated, although not openly negative, exhibits sexual bias by limiting its coverage of women's sports (10:64).

So far, the review of the literature has suggested that an individual internalizes the norms, values, and sanctions of society through modeling and imitation of significant others. The theory of socialization through sport is based on the same premise. Although the socialization process differs for males and females, the traditional feminine role of passivity, dependence, and emotionality has loosened up somewhat.

Does socialization through sports teach the child, particularly the female, the skills necessary for adult participation in the workplace? Atchley's continuity theory of aging posits that behaviors, attitudes, and values learned earlier in life predispose an individual to similar patterns of social participation in adulthood. Studies by Spreitzer and Snyder (1976), Kelly (1977), Laasko (1978), and McPherson (1978) all have found that adult sport participation is highly influenced by the level of participation exhibited in childhood (17:256). This suggests that the skills learned through sport groups such as interaction, leadership, competition, strategic thinking, and others may be carried into the adult work group. Further support for

this hypothesis is provided by Ritchie and Koller. In 1964, they reported that the play orientation experience gained in childhood is used in adulthood. They further concluded that the attitudes, values, roles, skills, and norms found in play and games are compatible with those found in adult work situations (17:265).

Gai Berlage examined the structure and organization of children's soccer and ice hockey in the New York and Connecticut metropolitan area. She explored the issue of whether children's competitive team sports are socialization agents for corporate America. She interviewed 222 fathers of male and female participants and concluded that the structural organization of children's competitive soccer and hockey sports programs resembles the structural organization of American corporations. In the study, the fathers continually expressed the importance of learning how to be part of a team. Additionally, they rated teamwork, self-discipline, leadership, and competitiveness as the most important attributes sports develop for business (1:309-324).

Sociologists such as Edwards, Page, and Schafer have commented on how the socialization effect of sports is reflected in American culture:

... the social world of sport, although clearly distinguishable, is an inseparable part of the larger society; its cultural characteristics reflect the more inclusive culture and in turn, help to shape society's standards and style of life (1:310).

Children learn the roles, skills, norms, and values of society through imitation and identification with significant others. Play and games are an important factor in the social learning process. Research reveals that the skills and values learned in the sport group carry over into adulthood, particularly into the workplace.

### Sports Personology

The identification of the personality characteristics of athletes has long been a popular topic in sports research. Coleman Griffith pioneered this field of study in 1938, when he analyzed the personalities of the members of the Chicago Cub professional baseball team (15:492).

In his article, "Processes of Group Interaction in Sport Teams," Albert Carron states that the personality and performance of a group is a function of the personalities of the group's members (5:248). If the traits acquired through the socialization process inherent in sports participation are carried into adulthood as earlier suggested, then the identification of these traits may help to predict an athlete's participation and performance in work groups.

Trait psychology underlies the majority of the personality research conducted to date. Trait theorists attempt to isolate and identify the basic personality dimensions that lead to consistent behavior. Hollander called these dimensions "typical responses," or learned

modes of adjustment to the environment (15:145-147). The researcher using this approach first measures a series of traits, usually with a personality inventory, and then tries to factor out consistent personality characteristics. One important assumption of trait theory is that behavior is very consistent and can be predicted across a wide range of situations (21:354).

Some researchers have rejected the trait approach in favor of the interaction approach. The interactional paradigm explains personality and behavior in terms of both the person and the situation in which the behavior occurs. Situational factors and personality traits are considered co-determinants of behavior. The importance of each is dependent upon the population studied and the situation observed (16:497).

Interactionists and others have many criticisms of trait theory. Its most obvious shortcoming is that research findings on the personality of the athlete have generally been inconsistent. Approximately half of the studies based on trait theory have identified a positive relationship between selected personality characteristics and sports participation. Unfortunately, the other half have failed to reach any conclusion. Martens, Cox, Boutilier and others cite poor methodology as the leading cause of inconsistent results (7:30; 2:61; 15:495). In particular, the following methodological problems are cited

in the literature: use of an atheoretical approach, poorly defined dependent and independent variables, poor sampling procedures, use of a variety of instruments limiting ability to compare findings, uninformed or nonexistent statistical analysis, generalization beyond the data, inference of causal relationships from correlational evidence, failure to see the interactionist approach, and response distortion due to self-reported data (7:30; 2:61).

Despite the many criticisms of trait theory, several researchers have reported interesting findings with regard to the personality characteristics of female athletes. These studies have generally used measurement instruments based on the trait view. The most commonly used and sophisticated instrument is Cattell's Sixteen Personality Factor Questionnaire (16PF). Cattell views personality as a hierarchical structure of source traits (fundamental structures of personality) and surface traits (learned behavior). Through factor analysis, the sixteen categories of source traits identified are reduced to eight surface traits. The 16PF remains the most commonly used and scientifically sound personality measurement in sports personality research (7:1516; 6:19).

The California Psychological Inventory (CPI) is also frequently used in this area of study. It evolved directly from the Minnesota Multiphasic Personality Inventory (MMPI), a highly valid and reliable test. The CPI measures

eighteen different facets of interpersonal behavior and groups these into four main categories. The Edwards Personal Preference Schedule (EPPS) is similar to the CPI and will also be of use in survey development (7:14-15).

Cattell's 16PF and the EPPS have previously been used to address the following hypotheses about personality: Do female athletes differ significantly from male athletes? Do team sport participants differ from individual sport participants? (2:63) Three different studies conducted using the 16PF and the CPI provide some answers to these research questions.

In 1967, Peterson, Weber, and Trousdale investigated the question of whether there are distinguishing personality differences between women who compete in team sports and those who participate in individual sports. They sampled 156 women AAU individual sport athletes and the United States Olympic women's volleyball and basketball teams. The study revealed that women athletes who compete in individual sports rated higher in dominance, adventurousness, sensitivity, introversion, radicalism, and self-sufficiency and lower in sophistication relative to team athletes. No differences were reported with respect to sociability, intelligence, stability, surgency, conscientiousness, suspecting, guilt-proneness, high self-sentiment, or high ergic tension (18:686).

Similarly, Malumphy tested for differences in personality traits of women in these five categories: team (basketball and field hockey), team and individual, subjectively judged sports (synchronized swimming and gymnastics), individual (tennis, golf, swimming, fencing, and archery), and non-participants. Malumphy also used Cattell's 16PF to survey his sample selected from the five largest Ohio universities. He concluded that individual sport participants are more venturesome than team sport participants. Also, they tend to display less anxiety, greater extroversion, and more leadership than team athletes (14:610).

Johnson's study of women who participated in basketball, field hockey, bowling, and golf provides further evidence of trait differences between individual and team sport participants. Using the CPI, she sampled women who placed first or second in regional or sectional tournaments, making them eligible for national competition in their respective sports. Johnson found that the basketball players scored significantly lower than the other three groups on dominance, capacity for status, sociability, social presence, self-acceptance, responsibility, self-control, tolerance, achievement, intelligence, and psychological-mindedness. Differences among the four groups were statistically significant on factors of

socialization, sense of well-being, good impression, communality, flexibility, and femininity (11:410).

If personality traits do differ among team sport athletes, individual athletes, and non-athletes, then the characteristics they bring into work groups should differ also. Albert Carron states, "the characteristics of the individuals comprising a group have an impact upon group interaction and integration as well as upon group productivity, satisfaction, morale, and so forth" (5:248). He suggests a general systems approach to group interaction and integration in which personal and environmental factors serve as inputs to the process of group integration and interaction. The outputs are achievement factors and personal-social factors.

Carron defines a team as, "a network of people who possess a collective identity, have a sense of shared purposes or objectives, use structured patterns of interaction and modes of communication, exhibit personal and task interdependence, and reciprocate interpersonal attraction" (5:246). Similarly, Landers, Brawley, and Landers define a sport group as "a task-oriented group consisting of 2-20 people who are motivated and dependent on each other to complete their specific sports assignments" (5:297).

Notice how the properties of a well-developed group in general, as defined by Brawley, et al., basically match the definitions of a team suggested above. A well-developed

group possesses the following properties: (a) collective action to complete a task, (b) self-definition as members of the group ("we-feeling"), (c) external acknowledgment of the group's existence, (d) shared rules, norms, and values that have consequences for group members, (e) a system of interlocking role and status positions, (f) cohesion, and (g) unified identity among members (5:298).

The research reviewed suggests that personality traits, norms, and values one acquires from socialization through sports are carried with the individual into adulthood. Work groups and teams share important characteristics such as shared purposes or task orientations, personal and task interdependence, group rules, norms and values, and interpersonal attraction. Therefore, it's suggested that participation in team sports may be one effective method to socialize or teach an individual the skills needed to become a successful team member.

#### Research Hypotheses

The intent of this study is to investigate the following research questions:

1) How do USAF female personnel classified as team sport participants and non-participants differ with respect to the following factors associated with performance in the work group?

Group Acceptance (team player vs individual)

Leadership Style (initiating structure vs consideration)

Loyalty (to group vs self)

Goal Orientation (group vs individual goals)

Competitiveness Within the Group

Competitiveness Against Other Groups

2) How do USAF female personnel classified as team sport participants and non-participants differ with respect to the following personality characteristics?

Conflict Resolution Approach (integrating vs avoiding)

Risk-Taking (risk-averse vs risk-taking)

Interpersonal Communications

Adaptability

Self-confidence

Achievement Motivation

Persistence

Extroversion

Trust (in co-workers)

Based on the review of the literature, it's expected that the team sport participants will score higher on factors of group loyalty, conformity to group norms and values, extroversion, and interpersonal communications than the non-participants. They should be team players, people-oriented, oriented to group goals, risk-averse, confident in other group members, and adaptable to different situations facing the group.

### III. Methodology

#### Chapter Overview

This chapter outlines the methodology used in investigation of the research hypotheses outlines in Chapter II, Literature Review and Research Hypotheses. It includes justification of the use of the survey approach, population and sample selection strategies, data collection methods, and data analysis techniques.

#### Justification of the Survey Approach

Four major measurement methods have traditionally been used in measuring personality traits. Both the interview and life history methods are difficult to quantify; consequently, the reliability and validity of these techniques are questionable. Furthermore, these methods were inconsistent with the intended data collection method and desired sample size. The remaining measurement method, the psychological inventory, is more easily quantified and thus has greater reliability. Therefore, this type of instrument was used in this study.

#### Population of Interest

The population of interest in this study was USAF female personnel stationed in the continental U.S. (CONUS). The sample population was selected from two different CONUS bases, Homestead AFB FL and Wright-Patterson AFB OH. Only

two bases were represented due to time constraints and the data collection method used.

### Sample Selection

The women who participated in this study were chosen in two different ways. Varsity and intramural team sport participants at each location were identified through the respective varsity athletic directors. These women were then contacted and asked to fill out the survey at Appendix A, rating themselves on several work group behavior variables and personality variables. They also provided information on their sports participation history and other demographic items of interest. Additionally, three co-workers of each of these females were asked to rate the female on same work group and personality variables using the survey at Appendix B. The remainder of the sample was randomly selected using listings of all female personnel stationed at the two bases. The listings were obtained through the Air Force Military Personnel Center (AFMPC) at Randolph AFB TX.

Each of the females administered a survey was contacted in person by the researcher and briefed on the nature of the study. Co-worker evaluators were chosen by the female herself and asked to participate in this research experiment. Completed surveys were either collected by the researcher in person or mailed in the return envelope provided.

### Survey Instrument

As mentioned earlier, two different survey instruments were used to collect the data. The survey given to the females of interest, also referred to as primaries, measured each female's self-perception of the following variables pertaining to her behavior in her work group and her personality: group acceptance, leadership style, achievement motivation, goal orientation, loyalty, competition within the work group, competition against other work groups, communication, conflict resolution style, adaptability, perseverance, self-confidence, trust, and extroversion. Part II asked the female to report each organized sport she had participated in, the level of that competition (college varsity, intramural, etc.), and the number of years of participation. Part III included items concerning rank, job title, age, and others.

The second survey instrument was administered to the co-workers of each female. The purpose of this survey was to collect data on co-worker's perceptions of the women on the same variables measured in the first survey.

### Data Analysis

The data obtained was analyzed using the Academic Support Computer (ASC), a Harris 800 system, at the Air Force Institute of Technology (AFIT). Specifically, the Statistical Package for the Social Sciences (SPSSx) was used to test the research hypotheses of this study.

The first test conducted tested the reliability of the first survey instrument. Each item was analyzed using the SPSSx subfunction, RELIABILITY, to determine whether how well each item measured the construct it was intended to measure. Items which significantly decreased the reliability of a variable scale were then deleted.

One-way analysis of variance was then conducted to test for significant differences in the group means for each of the personality and work group behavior scales. Using the SPSSx subfunction, ONEWAY, the group means were compared in three different ways. First, females in the team participant group were compared to those in the non-participant group on each of the variables of interest. Second, members of the team participant group were compared with the evaluations provided by their co-workers. Finally, members of the non-participant category were compared with the evaluations of their co-workers.

The null hypotheses were further analyzed using the SPSSx subfunction, T-TEST. Multiple Student t-tests compared the same groups as listed above for one-way analysis of variance. Conclusions were then drawn from the results of all the analyses. These are presented in Chapter V, Conclusions and Recommendations.

#### Chapter Summary

This chapter identified the population of interest, the sample selection and data collection strategies, and a

review of the survey instruments used and the data analysis conducted. In Chapter IV, Findings and Analysis, the results of the tests conducted will be presented.

## IV. Findings and Analysis

### Chapter Overview

This chapter presents the results of the statistical analysis of the survey data collected in this study. It includes the results of reliability analysis, one-way analysis of variance, and multiple Student t-tests, as outlined in the previous chapter.

### Survey Response

The intended sample size was 75 female USAF personnel; correspondingly, responses were sought from 225 co-workers (three per female). Thirty-Four women and ninety-one co-workers responded to the surveys for an overall response rate of 41.7 percent. Specifically, 45.3 percent of the women of interest and 40.4 percent of the co-workers participated in the study. These response rates were much lower than anticipated, but given the length of the surveys (9 pages and 89 items for the primaries and 5 pages and 66 items for the co-workers) and the data collection method used, the response rates were judged acceptable.

Six of the females' surveys were not included in the analysis because less than two of the co-workers responded. Similarly, 19 evaluator surveys were not used because they were either the only co-worker to respond or the female they were rating did not respond.

### Analysis of Research Hypotheses

The two research hypotheses suggested in this study were as follows. First, do team sport participants differ from non-participants with respect to performance in the work group? Second, do these two groups differ in terms of several different personality characteristics? To investigate these hypotheses, analysis of the data concentrated on testing for significant differences between the two groups. However, before any analysis was done, the raw data was subjectively analyzed to determine the makeup of the groups.

Group Decision Criteria. Decision criteria for placing the women into one of the two groups (team sport participant or non-participant) were arbitrarily chosen. Specifically, if a woman participated in a single organized team sport for seven or more years, she was placed in the team sport participant group. Additionally, if she participated in two organized team sports for at least five years each or three sports for at least three years each, she was also included in the participant group. All those not meeting this criteria were placed in the non-participant category. Individual sport participants were not included in the study.

Overall, 15 women qualified for the team participant group, while 13 were placed in the non-participant group. Co-workers were divided into two groups, depending on which group the female they rated was placed. Thirty-one

co-workers evaluated the non-participants and forty-one co-workers rated the team participants.

#### Reliability Analysis of Survey Items

Before the means of the two groups were compared on the research variables, reliability analysis was conducted on the survey items pertaining to each variable scale. The SPSSx subfunction, RELIABILITY, was used to perform this analysis. Cronbach's alpha was the reliability measure used to determine whether the item truly measured what it was intended to. This particular internal consistency measure can range in value from 0 to 1; the higher the value, the greater the correlation between the items that comprise a scale. Items that would significantly raise the Cronbach's alpha for a particular scale if deleted were eliminated. These results are presented in Appendix C, Table 1.

The variables scales affected were group acceptance, leadership style, goal orientation, degree of competition within the work group, degree of competition against other work groups, achievement motivation, conflict resolution approaches, communication, perseverance, risk aversion, self-confidence, adaptability, and trust. A brief look at Table 1 of Appendix C reveals that GOAL1 or item number 9 shows that elimination of this item would raise the reliability coefficient of the goal orientation scale from 0.63 to 0.65. Similarly, the Cronbach's alpha of the leadership style scale was raised from 0.38 to 0.52 by

deleting LEAD5 from the scale. All scale items deleted because they reduced the reliability of their respective scale are shown in Table 1 with an asterisk.

In all, 16 survey items were not included in this study for this reason. Additionally, five entire scales (competition against other work groups, trust, risk aversion, communication, and perseverance) were dropped from the analysis because of low reliabilities. The revised variable scales retained for further analysis and their corresponding reliability coefficients are shown in Table 2 of Appendix C.

#### Hypothesis One

Once again, the first hypothesis deals with the differences in selected work performance characteristics of those women considered participants and those designated as non-participants. Two methods of comparing group means, one-way analysis of variance and Student t-tests, were used to test this hypothesis.

One-Way Analysis of Variance. The SPSSx subfunction, ONEWAY, was used to test the null hypothesis that the means of the two groups of primaries on each work group behavior scale were the same. A 95 percent confidence level ( $\alpha = .05$ ) was used as the rejection criteria in this analysis. The results of the first one-way analysis of variance can be found in Appendix D, Table 3, of this report. The F probabilities for the work group behavior variables group

acceptance, leadership style, loyalty, goal orientation, and competition within the work group were, 0.47, 0.85, 0.33, 0.33, and 0.27, respectively. The two groups did not appear to differ significantly on these variables.

In addition to comparing the two groups of primaries on these characteristics, one-way analysis of variance was also used to compare the females in each of these groups with the co-workers that rated them. Appendix D, Table 4, shows the results of the comparison of the team participants with their evaluators. At an alpha level of .05, the groups differed only on perception of the females goal orientation (F probability of 0.05).

Results of the comparison of the views of the women in the non-participant group to the views of their co-workers are presented in Table 5 of Appendix D. The following F probabilities were computed: group acceptance equaled 0.46, leadership style equaled 0.83, loyalty was 0.08, goal orientation was 0.27, and competition within the work group was 0.30. None of these differences was significant at the 95 percent confidence level.

Multiple Student T-tests. The same hypothesis was also tested using the SPSSx subfunction, T-TEST. Once again, the team participant group was compared to the non-participant group on selected work group characteristics. These and all other conducted in this study were calculated using either a pooled variance estimator or separate

variance estimators. The decision of which to use was made by first testing for homogeneity of variances. If the values of the hypothesized subpopulation variances were equal, then the pooled variance estimator was used. Whenever they were determined to be unequal, separate variance estimators were used. Specifically, the Cochran's C statistic was used to investigate for homogeneity of variance. P values greater than or equal to .05 were considered to indicate equal subpopulation variances.

Results of the t-test for each work group behavior variable are presented in Appendix D, Table 6. None of the five P values were significant at an alpha level of .05.

T-tests were also used to search for significant differences between each group and its respective set of co-workers. The results of these analyses are presented in Appendix D, Tables 7 and 8. Comparison of the team participants and their co-workers' evaluations of them revealed a significant difference between these two with respect to goal orientation (P value of 0.05). The female participants had a group mean of 2.31, whereas the co-workers group mean was 1.92. No significant differences were detected for group acceptance, leadership style, loyalty, or competition within the work group. Comparison of the non-participants with their co-workers revealed no significant differences on the work group behavior variables.

## Hypothesis Two

The second hypothesis suggested in this study questions whether team sport participants differ from non-participants with regard to several different personality characteristics. These characteristics include achievement motivation, self-confidence, adaptability, extroversion, and integrating and avoiding conflict resolution techniques. The same procedures that were used to evaluate the first hypothesis were again used. Specifically, comparison of group means were accomplished through one-way analysis of variance and multiple Student t-tests.

One-Way Analysis of Variance. The first analysis of variance tested for differences in the group means of the team participant and non-participant categories. These results are presented in Table 9 of Appendix D. Using a confidence level of 95 percent, it appears that none of these were significant. The F probabilities for personality variables achievement motivation, self-confidence, adaptability, extroversion, and the two conflict resolution approaches were 0.15, 0.97, 0.66, 0.58, and 0.17, respectively.

The second one-way analysis of variance tested for differences between the team participants' responses and those responses provided by their evaluators. The results shown in Appendix D, Table 10, indicate a significant difference between the two groups on the variable,

achievement motivation. The F probability was 0.03, significant at the 95 percent confidence level. The remaining variable comparisons did not indicate that the two groups differed.

The final one-way analysis of variance tested for differences between the non-participant group and their evaluators regarding the same six personality characteristics. The computed F ratios and probabilities are shown in Appendix D, Table 11. None of the differences between the two groups appeared significant when alpha equaled .05.

Multiple Student t-tests. In accordance with the methodology stated in Chapter III, Methodology, multiple Student t-tests were also used to compare the means of the different groups on the personality variables of interest. All t-tests were conducted using an alpha of .05. Additionally, the use of the pooled variance estimator or separate variance estimators was determined in the same manner as in the t-tests performed for the first hypothesis.

The first t-test compared the team participants and the non-participants on the variables, achievement motivation, self-confidence, adaptability, extroversion, and the two conflict resolution approaches. A brief look at Table 12 of Appendix D reveals that none of the P values was less than .05, and therefore, none of the differences in the group means was significant.

The second t-test compared the group means of the team participants' responses and those of their evaluators on each of the personality characteristics. These results are presented in Appendix D, Table 13. The T value for achievement motivation was -2.75 with a P value of 0.01. Since this suggests that the probability of this difference occurring by chance alone is only 1 percent, this difference was considered to be significant. No other significant differences were found between the two groups in this test.

The final t-test compared the responses of the non-participants with those of their co-workers regarding the personality variables. As with the one-way analysis of variance of these same groups, no significant differences were found in this t-test. Results of this analysis are shown in Table 14 of Appendix D.

#### Chapter Summary

This chapter presented the findings of this research effort, and described the formal analysis techniques used. The results of each analysis were presented in both tabular and narrative form. The next chapter discusses the findings and offers recommendations for further study of the research problem.

## V. Conclusions and Recommendations

### Chapter Overview

This chapter discusses the findings of the previous chapter and offers possible explanations for the results. In addition, recommendations for further investigation of the research problem are suggested.

### Hypothesis One

This research study sought to determine if USAF female personnel with a history of team sport participation differ significantly from female members with little or no team sport participation history in terms of selected work group behaviors. The work group behavior variables studied were group acceptance, leadership style, loyalty, goal orientation, and degree of competitiveness exhibited within the work group. This hypothesis was tested using two different methods, each revealing that no significant differences appeared to be present between the two groups. Therefore, the researcher can only conclude that there is insufficient evidence to reject the null hypothesis at the 95 percent confidence level.

### Hypothesis Two

The second hypothesis tested in this study was whether USAF female personnel with histories of team sport participation differ from female personnel with little or no

participation histories with regard to several personality characteristics. The personality characteristics of interest were achievement motivation, self-confidence, adaptability to changing situations, extroversion, and integrating and avoiding conflict resolution approaches. This hypothesis was tested using the same methods as the first hypothesis, again revealing no evidence of significant differences between the two groups at the 95 percent confidence level.

#### Other Analysis

In addition to comparing team participants and non-participants on the work and personality variables, the survey data was also analyzed in two other ways. Comparison of the team participants' responses with those of their co-workers led to one significant finding. The co-workers rated the goals of the team participants as significantly more oriented toward the work group than team participants themselves did.

In contrast, team participants and co-workers disagreed significantly on the personality variable, achievement motivation. Team participants tended to report a higher level of achievement motivation than that observed of them by their co-workers.

Although these two findings were not related to the two hypotheses presented in this study, they may bear

further investigation. In particular, the shortcomings of self-reporting may have an effect on research conducted in this manner.

### Recommendations

This research study concentrated on the differences between team sport participants and non-participants with regard to eleven different variables. However, the researcher offers the following recommendations for further analysis of this research problem and other related ones.

In this study, the method of determining the groups that the females were placed into were completely arbitrary. Future researchers may want to consider developing rigid guidelines for this process.

The population of interest in this study was female USAF personnel station in the CONUS. The sample was selected from only two CONUS bases due to time constraints and the data collection strategy followed. Further research of this problem should include a random sample of women from a larger number of bases to ensure that the sample population truly represents the population of interest.

Related to the previous recommendation, the researcher recommends a different data collection be used in follow-on studies of the research problem. The strategy used in this study was extremely time-consuming and led to very small sample sizes. The small sample sizes realized by the study's data collection methodology limits the ability to

detect differences between the team sports participants and non-participants. Mass mailing to a very large number of women at several different bases is suggested as a viable alternative.

Much of the research conducted to date in the problem area has included a third group, individual sport participant, for comparison. Significant results have been found by several researchers including Malumphy, Peterson, and Berlage (1:309-324; 14:610; 18:686). It would be interesting to know if the same phenomenon exists among Air Force women.

The data collected from the survey instruments used in this study included information about each of the respondents such as age, rank, job title, and time in present position. These variables were not used in the comparison of the two groups. In depth analysis of this data may reveal some significant differences between the two groups or some related findings of interest.

Finally, this study did not compare the group means of the co-workers of the team participants with those of the non-participants. It is suggested that in any follow-on of this study, the researcher compute the average of the co-workers' scores for each female, and then compare the two co-worker groups. Since self-reporting is not always accurate, the co-workers may be a better judge of the

variable in this study. Comparison of these group means may lead to significant findings not revealed in this study.

#### Chapter Summary

In conclusion, although no significant differences were found between team sport participants and non-participants in this study, the problem area is wide open for further research. The recommendations above offer several improvements to the methodology presented here in hopes that the problem will be further explored.

Appendix A: Primary Survey Instrument

SURVEY ON THE SOCIALIZATION OF SPORT (SCN 86-93)

PART I: INSTRUCTIONS

The item statements presented in PART I concern your feelings toward your supervisor and work group (others who you work closely with in the same area, office or section) and your behavior within it. Answer each question objectively; there are no right or wrong answers. Remember, your identity will remain anonymous. Please respond to each statement using one of the following choices:

1. The statement strongly represents my position.
  2. The statement moderately represents my position.
  3. The statement is not related to my position.
  4. The statement moderately disagrees with my position.
  5. The statement strongly disagrees with my position.
- 
1. I often assist my co-workers with tasks.
  2. In my work group, I take advantage of opportunities to be involved in solving problems that affect the group.
  3. I often act with consulting the other members of my work group.
  4. The welfare of my co-workers is more important than the success of the mission.
  5. I pay a good deal of attention to the feelings of others at work.
  6. I try very hard to improve on my past performance at work.
  7. I have no trouble fitting in with my work group.
  8. I prefer to work alone.
  9. I am willing to put in a great deal of effort beyond that normally expected in order to help our unit to be successful.
  10. I don't let my work group down.
  11. I won't show off by trying to outdo the people I work with.
  12. I enjoy cooperating with my co-workers.

1. The statement strongly represents my position.
  2. The statement moderately represents my position.
  3. The statement is not related to my position.
  4. The statement moderately disagrees with my position.
  5. The statement strongly disagrees with my position.
- 
13. I'm better off if I don't trust my co-workers.
  14. I sometimes act in ways that upset my co-workers.
  15. I feel more competitive toward individuals in my work group than toward others outside of it.
  16. I'm loyal to my work group.
  17. I exchange accurate information with members of my work group to help solve a problem together.
  18. I act in ways that support the goals of my work group.
  19. Often I find it difficult to communicate with my co-workers.
  20. I make sure my supervisor is aware of my personal work accomplishments.
  21. Good communication is essential if my work group is to succeed.
  22. I take moderate risks and stick my neck out to get ahead at work.
  23. I try to work with my co-workers for a proper understanding of problems.
  24. I would rather be an equal member in a highly successful work group than the best performer in a marginally successful work group.
  25. I feel a great deal of responsibility to others in my work group.
  26. I treat all of my work group members as equals.
  27. In my work group, I have to be alert or someone is likely to take advantage of me.
  28. I really care about the fate of my work group.
  29. I maintain a good working relationship with members of other work groups or units.

1. The statement strongly represents my position.
  2. The statement moderately represents my position.
  3. The statement is not related to my position.
  4. The statement moderately disagrees with my position.
  5. The statement strongly disagrees with my position.
- 
- \_\_\_ 30. I often feel I'm in competition with my co-workers.
  - \_\_\_ 31. Winning is important to myself and my co-workers.
  - \_\_\_ 32. I attempt to avoid being "put on the spot" and try to keep my conflicts with other group members to myself.
  - \_\_\_ 33. Given the opportunity, I'm willing to give orders to others.
  - \_\_\_ 34. I enjoy cooperating with my co-workers even if I don't get credit for it.
  - \_\_\_ 35. I usually enjoy being with other people in a social setting.
  - \_\_\_ 36. If I don't succeed at a task at first, I continue working on it until I succeed.
  - \_\_\_ 37. I must admit I often try to get my own way regardless of what others in my work group want.
  - \_\_\_ 38. The goals of my work group are compatible with my own personal goals.
  - \_\_\_ 39. Generally, I like to take more risks than other women I know.
  - \_\_\_ 40. I find that my values and my work group's values are very similar.
  - \_\_\_ 41. I try to keep my disagreement with work group members to myself to avoid any hard feelings.
  - \_\_\_ 42. My co-workers work together like a sports team does.
  - \_\_\_ 43. No one knows this job better than I do.
  - \_\_\_ 44. A person who leads an even, regular life, in which few happenings arise, has a lot to be grateful for.
  - \_\_\_ 45. I often share my personal life with my co-workers.
  - \_\_\_ 46. It's important for my work group to be better than other similar work groups.

1. The statement strongly represents my position.
  2. The statement moderately represents my position.
  3. The statement is not related to my position.
  4. The statement moderately disagrees with my position.
  5. The statement strongly disagrees with my position.
- 
47. I'm often the last one to give up trying to solve a problem.
  48. I provide all the necessary information I possess to my co-workers so they can do their jobs effectively.
  49. I meet people and make friends easier than most people.
  50. How well I perform on the job is extremely important to me.
  51. I usually accommodate the wishes of others in my work group.
  52. What we are used to is always preferable to what is unfamiliar.
  53. I do not enjoy having to adapt myself to new and unusual situations.
  54. I out perform most everyone else in my work group.
  55. There really is no such thing as a problem that can't be solved.
  56. I use "give and take" so that a compromise can be made.
  57. I use my influence to get my ideas accepted.
  58. I usually find that my own way of attacking a problem is best.
  59. I can rely on my co-workers to help me get the job done.
  60. I dislike changing plans in the midst of an undertaking.
  61. I try to avoid any added responsibilities at work.
  62. I often become so wrapped up in something that I find it difficult to turn my attention to other matters.

YOU HAVE COMPLETED PART I OF THE SOCIALIZATION THROUGH SPORT SURVEY. PLEASE TURN TO THE NEXT PAGE AND CONTINUE ON TO PART II.

PART II: INSTRUCTIONS

The following questions are designed to collect information about your history of participation in organized sports. Please circle the choice that best describes yourself of fill in the answer to statements offering no choice. DO NOT USE THE COMPUTER CODING FORM TO ANSWER THESE QUESTIONS!

For this study, organized sports are defined as:

Sports that have been organized for play by some sanctioned governing body. Examples of this would be junior high school and field, high school varsity volleyball, intramural softball, community league soccer, and league bowling.

63. Using the above definition, have you ever participated in an organized sport?

1. Yes

2. No

64. Whether you have participated in organized sports or not, are you currently participating in any type of athletics (organized or not)?

65. Please use this portion of the survey to comment on the statement, "participation in sports is a definite influencing factor on the ability to perform in a work group."

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IF YOUR ANSWER TO QUESTION #63 IS NO, PLEASE GO ON TO PART III; YOU HAVE COMPLETED THIS PORTION OF THE SURVEY. IF YOUR ANSWER IS YES, PLEASE TURN TO THE NEXT PAGE AND ANSWER THE REMAINING QUESTIONS ON THOSE SPORTS (UP TO THREE) IN WHICH YOU HAVE THE MOST EXPERIENCE.

SPORT NUMBER 1

66. The organized sport in which I have the most experience is: \_\_\_\_\_.
67. What level of play was/is this? Please circle all that apply.
1. Community League
  2. Junior High School
  3. High School Varsity
  4. High School J.V.
  5. College Varsity
  6. College J.V.
  7. College Intramural
  8. Semi-Professional
  9. Professional
  10. Base-Level Intramural
  11. Base-Level Varsity
  12. Command/AF/Armed Forces Level
  13. Other - Please Specify: \_\_\_\_\_
68. How long, in years, have you actively participated in this sport on an organized bases?
- |                |            |
|----------------|------------|
| 1. Less than 1 | 5. 7 - 8   |
| 2. 1 - 2       | 6. 9 - 10  |
| 3. 3 - 4       | 7. Over 10 |
| 4. 5 - 6       |            |
69. Were you a team captain or equivalent in this sport?
- |        |       |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|
70. How would you rate your athletic ability in this sport?
- |                           |                           |
|---------------------------|---------------------------|
| 1. Well below average     | 4. Somewhat above average |
| 2. Somewhat below average | 5. Well above average     |
| 3. Average                |                           |
71. Through participation in this sport, I've learned how people should work together to be successful.
- |                              |                   |
|------------------------------|-------------------|
| 1. Disagree strongly         | 5. Agree slightly |
| 2. Disagree                  | 6. Agree          |
| 3. Disagree slightly         | 7. Agree strongly |
| 4. Neither agree or disagree |                   |

IF THERE ARE MORE SPORTS IN WHICH YOU HAVE PARTICIPATED, PLEASE CONTINUE ON. IF NOT, PLEASE GO ON TO PART III, YOU HAVE COMPLETED THIS PORTION OF THE SURVEY.

SPORT NUMBER 2

72. The organized sport in which I have the most experience is: \_\_\_\_\_.
73. What level of play was/is this? Please circle all that apply.
1. Community League
  2. Junior High School
  3. High School Varsity
  4. High School J.V.
  5. College Varsity
  6. College J.V.
  7. College Intramural
  8. Semi-Professional
  9. Professional
  10. Base-Level Intramural
  11. Base-Level Varsity
  12. Command/AF/Armed Forces Level
  13. Other - Please Specify: \_\_\_\_\_
74. How long, in years, have you actively participated in this sport on an organized bases?
- |                |            |
|----------------|------------|
| 1. Less than 1 | 5. 7 - 8   |
| 2. 1 - 2       | 6. 9 - 10  |
| 3. 3 - 4       | 7. Over 10 |
| 4. 5 - 6       |            |
75. Were you a team captain or equivalent in this sport?
- |        |       |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|
76. How would you rate your athletic ability in this sport?
- |                           |                           |
|---------------------------|---------------------------|
| 1. Well below average     | 4. Somewhat above average |
| 2. Somewhat below average | 5. Well above average     |
| 3. Average                |                           |
77. Through participation in this sport, I've learned now people should work together to be successful.
- |                              |                   |
|------------------------------|-------------------|
| 1. Disagree strongly         | 5. Agree slightly |
| 2. Disagree                  | 6. Agree          |
| 3. Disagree slightly         | 7. Agree strongly |
| 4. Neither agree or disagree |                   |

IF THERE ARE MORE SPORTS IN WHICH YOU HAVE PARTICIPATED, PLEASE CONTINUE ON. IF NOT, PLEASE GO ON TO PART III, YOU HAVE COMPLETED THIS PORTION OF THE SURVEY.

SPORT NUMBER 3

78. The organized sport in which I have the most experience is: \_\_\_\_\_.
79. What level of play was/is this? Please circle all that apply.
1. Community League
  2. Junior High School
  3. High School Varsity
  4. High School J.V.
  5. College Varsity
  6. College J.V.
  7. College Intramural
  8. Semi-Professional
  9. Professional
  10. Base-Level Intramural
  11. Base-Level Varsity
  12. Command/AF/Armed Forces Level
  13. Other - Please Specify: \_\_\_\_\_
80. How long, in years, have you actively participated in this sport on an organized bases?
- |                |            |
|----------------|------------|
| 1. Less than 1 | 5. 7 - 8   |
| 2. 1 - 2       | 6. 9 - 10  |
| 3. 3 - 4       | 7. Over 10 |
| 4. 5 - 6       |            |
81. Were you a team captain or equivalent in this sport?
- |        |       |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|
82. How would you rate your athletic ability in this sport?
- |                           |                           |
|---------------------------|---------------------------|
| 1. Well below average     | 4. Somewhat above average |
| 2. Somewhat below average | 5. Well above average     |
| 3. Average                |                           |
83. Through participation in this sport, I've learned how people should work together to be successful.
- |                              |                   |
|------------------------------|-------------------|
| 1. Disagree strongly         | 5. Agree slightly |
| 2. Disagree                  | 6. Agree          |
| 3. Disagree slightly         | 7. Agree strongly |
| 4. Neither agree or disagree |                   |

PLEASE GO ON TO PART III; YOU HAVE COMPLETED THIS PORTION OF THE SURVEY.

PART III: INSTRUCTIONS

The following questions are designed to collect background information about you, such as rank, education, and job title. Please circle the choice that best describes yourself of fill in the answer to statements offering no choice.

84. My current rank is \_\_\_\_\_.

85. My present age in years is:

- |            |            |
|------------|------------|
| 1. 18 - 22 | 4. 33 - 37 |
| 2. 23 - 27 | 5. 38 - 42 |
| 3. 28 - 32 | 6. Over 42 |

86. Highest level of education completed in years:

- |       |               |
|-------|---------------|
| 1. 12 | 5. 16         |
| 2. 13 | 6. 17         |
| 3. 14 | 7. 18         |
| 4. 15 | 8. 19 or over |

87. Current Air Force Specialty Code (AFSC): \_\_\_\_\_  
\_\_\_\_\_

88. Current job title: \_\_\_\_\_

89. How long, in months, have you worked in your current unit? \_\_\_\_\_

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY.  
YOUR COOPERATION IS GREATLY APPRECIATED!

NOTE: The results of this study are available to you and any other interested individual upon request.

Appendix B: Co-Worker Survey Instrument

SURVEY ON THE SOCIALIZATION OF SPORT (SCN 86-93)

PART I: INSTRUCTIONS

The item statements presented below concern your perceptions of the attitudes and behaviors of your female co-worker within your work group (others who you work closely with in the same area, office, or section). Answer each question objectively; there are no right or wrong answers. Remember, your identity will remain anonymous. Please respond to each statement using one of the following choices:

1. The statement strongly represents her attitudes/actions.
2. The statement moderately represents her attitudes/actions.
3. The statement is not related to her attitudes/actions.
4. The statement moderately disagrees with her attitudes/actions.
5. The statement strongly disagrees with her attitudes/actions.

- \_\_\_ 1. She often assists myself and our co-workers with tasks.
- \_\_\_ 2. In our work group, she takes advantage of the opportunity to be involved in solving problems that affect the group.
- \_\_\_ 3. She often acts without consulting the other members of our work group.
- \_\_\_ 4. The welfare of our co-workers is more important to her than the success of the mission.
- \_\_\_ 5. She pays a good deal of attention to the feelings of others at work.
- \_\_\_ 6. She tries very hard to improve on her past performance at work.
- \_\_\_ 7. She has no trouble fitting in with our work group.
- \_\_\_ 8. She prefers to work alone.
- \_\_\_ 9. She is willing to put in a great deal of effort beyond that normally expected in order to help our unit to be successful.
- \_\_\_ 10. She doesn't let our work group down.
- \_\_\_ 11. She doesn't show off by trying to outdo the people we work with.
- \_\_\_ 12. She enjoys cooperating with our co-workers.

1. The statement strongly represents her attitudes/actions.
2. The statement moderately represents her attitudes/actions.
3. The statement is not related to her attitudes/actions.
4. The statement moderately disagrees with her attitudes/actions.
5. The statement strongly disagrees with her attitudes/actions.

- 13. She doesn't trust the other members of our work group.
- 14. She sometimes acts in ways that upset our co-workers.
- 15. She feels more competitive toward individuals in our work group than toward others outside of it.
- 16. She's loyal to our work group.
- 17. She exchanges accurate information with other members of our work group to help us solve a problem together.
- 18. She acts in ways that support the goals of our work group.
- 19. Often she finds it difficult to communicate with our co-workers.
- 20. She makes sure that her supervisor is aware of her personal work accomplishments.
- 21. Good communication is essential if our work group is to succeed.
- 22. She takes moderate risks and sticks her neck out to get ahead at work.
- 23. She tries to work with the members of our work group for a proper understanding of problems.
- 24. It appears that she would rather be an equal member in a highly successful work group than the best performer in a marginally successful work group.
- 25. She demonstrates a great deal of responsibility to others in our work group.
- 26. She treats all of our work group members as equals.
- 27. She is alert to make sure that no one in our work group takes advantage of her.
- 28. She really cares about the fate of our work group.
- 29. She maintains a good working relationship with members of other work groups or units.

1. The statement strongly represents her attitudes/actions.
2. The statement moderately represents her attitudes/actions.
3. The statement is not related to her attitudes/actions.
4. The statement moderately disagrees with her attitudes/actions.
5. The statement strongly disagrees with her attitudes/actions.

- \_\_\_ 30. She often acts as if she's competing with our co-workers.
- \_\_\_ 31. Winning is important to her and the members of our work group.
- \_\_\_ 32. She avoids being "put on the spot" and tries to keep her conflicts with other group members to herself.
- \_\_\_ 33. Given the opportunity, she's willing to give orders to others.
- \_\_\_ 34. She enjoys cooperating with the other members of our work group even if she doesn't get credit for it.
- \_\_\_ 35. She enjoys being with other people in a social setting.
- \_\_\_ 36. If she doesn't succeed at a task at first, she continues working on it until she does succeed.
- \_\_\_ 37. She often tries to get her own way regardless of what others in the work group want.
- \_\_\_ 38. Her goals are compatible with the goals of our work group.
- \_\_\_ 39. Generally, she takes more risks than most other women.
- \_\_\_ 40. Her values appear very similar to the values of our work group.
- \_\_\_ 41. She tries to keep her disagreement with other work group members to herself to avoid any hard feelings.
- \_\_\_ 42. She views our work group as similar to a sports team.
- \_\_\_ 43. She thinks she knows her job better than anyone else does.
- \_\_\_ 44. She often becomes so wrapped up in something that she finds it difficult to turn her attention to other matters.
- \_\_\_ 45. She often shares her personal life with members of our work group.

1. The statement strongly represents her attitudes/actions.
  2. The statement moderately represents her attitudes/actions.
  3. The statement is not related to her attitudes/actions.
  4. The statement moderately disagrees with her attitudes/actions.
  5. The statement strongly disagrees with her attitudes/actions.
- 
- \_\_\_ 46. It's important to her that our work group be better than other similar work groups.
  - \_\_\_ 47. She's often the last one to give up trying to solve a problem.
  - \_\_\_ 48. She provides all the necessary information she possesses to our co-workers so they can do their jobs effectively.
  - \_\_\_ 49. She meets people and makes friends easier than most people.
  - \_\_\_ 50. Her job performance is extremely important to her.
  - \_\_\_ 51. She usually accommodates the wishes of others in our work group.
  - \_\_\_ 52. She prefers familiar tasks to unfamiliar ones.
  - \_\_\_ 53. She does not enjoy having to adapt herself to new and unusual situations.
  - \_\_\_ 54. She believes that she out performs most everyone else in our work group.
  - \_\_\_ 55. She believes that there is really no such thing as a problem that can't be solved.
  - \_\_\_ 56. She uses "give and take" so that a compromise can be made.
  - \_\_\_ 57. She uses her influence to get her ideas accepted.
  - \_\_\_ 58. She usually thinks that her own way of attacking a problem is best.
  - \_\_\_ 59. She trusts the other members of our work group to help her get the job done.
  - \_\_\_ 60. She dislikes changing plans in the midst of an undertaking.

YOU HAVE COMPLETED PART I OF THE CO-WORKER SURVEY. PLEASE  
TURN TO THE NEXT PAGE AND CONTINUE TO PART II.

PART II: INSTRUCTIONS

The following questions concern your professional relationship with your female co-worker. Please answer in the space provided.

61. How long have you known this individual (in months)?  
\_\_\_\_\_

62. Is she higher or lower ranking than you? \_\_\_\_\_

63. Do you socialize with her on a regular basis? \_\_\_\_\_

64. Do you think she'll make the Air Force a career? \_\_\_\_\_

65. What type of squadron do you work in (i.e., CES, AGS)?  
\_\_\_\_\_

66. Please use this space to provide any additional comments or feelings you may have about your female co-worker or this study.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

YOU HAVE COMPLETED THE CO-WORKER QUESTIONNAIRE. THANK YOU FOR YOUR COOPERATION.

NOTE: The results of this study are available to you or any interested person upon request.

Appendix C: Reliability Analysis

TABLE I

Reliability Analysis of Each Item

<u>Scale</u>	<u>Item #</u>	<u>Var Name</u>	<u>Alpha if Item Deleted</u>
Group Acceptance	1	GACC1	.3698
	2	GACC2	.4088*
	3	GACC3	.3747
	7	GACC4	.3717
	8	GACC5	.3765
Leadership Style	4	LEAD1	.3275
	5	LEAD2	.0883
	26	LEAD3	.0547
	28	LEAD4	.3708
	33	LEAD5	.5217*
Achievement	6	AM1	.1646
Motivation	22	AM2	.5531*
	50	AM3	.2723
Goal Orientation	9	GOAL1	.6449*
	14	GOAL2	.5896
	18	GOAL3	.5970
	37	GOAL4	.5821
	38	GOAL5	.5644
	40	GOAL6	.5726
Loyalty	10	LOY1	.5128
	16	LOY2	.4999
	25	LOY3	.3472
Competition Within Work Group	11	CWI1	.4490
	12	CWI2	.4507
	15	CWI3	.4719
	20	CWI4	.5245
	24	CWI5	.4674
	27	CWI6	.5410*
	30	CWI7	.3801
	34	CWI8	.4869

TABLE I (Continued)

## Reliability Analysis of Each Item

<u>Scale</u>	<u>Item #</u>	<u>Var Name</u>	<u>Alpha if Item Deleted</u>
Conflict Resolution Approach (Integrating)	17	CR1	+
	23	CR2	+
Conflict Resolution Approach (Avoiding)	32	CR3	+
	41	CR4	+
Communication	19	COMM1	.0349*
	21	COMM2	.3958*
	48	COMM3	.2040*
Competition Against Other Groups	29	CA1	.4639*
	31	CA2	.3993*
	42	CA3	.3484*
	46	CA4	.2963*
Extroversion	35	EXTRO1	.3073
	45	EXTRO1	.4764
	49	EXTRO1	.3761
Perseverance	36	PERS1	++
	47	PERS2	++
Risk Aversion	39	RISK1	++
	52	RISK2	++
Self-Confidence	43	SC1	.4461
	54	SC2	.3818
	55	SC3	.7641*
	58	SC4	.5025
Adaptability	44	ADAPT1	.4816
	53	ADAPT2	.1702
	60	ADAPT3	.5640*
Trust	13	TRUST1	++
	59	TRUST2	++

TABLE II

## Reliability Coefficients for Revised Variable Scales

<u>Variable Scale</u>	<u>Reliability Coefficient</u>
Group Acceptance	0.41
Leadership Style	0.52
Achievement Motivation	0.55
Goal Orientation	0.65
Loyalty	0.56
Competition Within Work Group	0.54
Conflict Resolution Approach (Integrating)	0.80
Conflict Resolution Approach (Avoiding)	0.70
Extroversion	0.48
Self-Confidence	0.76
Adaptability	0.56

Appendix D: Results of Comparisons of Group Means

TABLE III

First One-Way Analysis of Variance of  
Work Group Behavior Variables

Group1 -- Team Sport Participant Group2 -- Non-Participant						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>F Ratio</u>	<u>F Prob</u>
GRPACCT						
Group1	15	1.95	0.55	0.14		
Group2	13	2.12	0.63	0.18	0.54	0.47
LEAD						
Group1	15	1.90	0.64	0.17		
Group2	13	1.94	0.52	0.14	0.04	0.85
LOY						
Group1	15	1.47	0.37	0.10		
Group2	13	1.64	0.55	0.15	0.98	0.33
GOAL						
Group1	15	2.31	0.61	0.16		
Group2	13	2.09	0.52	0.14	0.98	0.33
CWI						
Group1	15	2.11	0.42	0.11		
Group2	13	2.33	0.58	0.16	1.29	0.27

TABLE IV

Second One-Way Analysis of Variance of  
Work Group Behavior Variables

Group1 -- Primary Group2 -- Co-Worker						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>F Ratio</u>	<u>F Prob</u>
GRPACCT						
Group1	15	1.95	0.55	0.14	0.06	0.80
Group2	41	1.99	0.61	0.10		
LEAD						
Group1	15	1.90	0.64	0.17	1.08	0.30
Group2	41	2.10	0.62	0.10		
LOY						
Group1	15	1.47	0.37	0.10	0.001	0.30
Group2	41	1.47	0.57	0.09		
GOAL						
Group1	15	2.31	0.61	0.16	4.02	0.05
Group2	41	1.92	0.64	0.10		
CWI						
Group1	15	2.11	0.42	0.11	0.03	0.87
Group2	41	2.40	0.61	0.10		

TABLE V

Third One-Way Analysis of Variance of  
Work Group Behavior Variables

Group1 -- Primary Group2 -- Co-Worker						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>F Ratio</u>	<u>F Prob</u>
GRPACCT						
Group1	13	2.12	0.63	0.18	0.55	0.46
Group2	31	1.98	0.50	0.09		
LEAD						
Group1	13	1.94	0.52	0.14	0.05	0.83
Group2	31	1.98	0.59	0.11		
LOY						
Group1	13	1.64	0.55	0.15	3.18	0.08
Group2	31	1.33	0.51	0.09		
GOAL						
Group1	13	2.09	0.52	0.14	1.22	0.27
Group2	31	1.85	0.71	0.13		
CWI						
Group1	13	2.33	0.58	0.16	1.08	0.30
Group2	31	2.16	0.47	0.08		

TABLE VI

T-Test for Participants vs Non-Participants  
Regarding Work Group Behavior Variables

Group1 -- Team Sport Participant Group2 -- Non-Participant						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>T Value</u>	<u>P Value</u>
GRPACCT+						
Group1	15	1.95	0.55	0.14		
Group2	13	2.12	0.63	0.18	-0.74	0.47
LEAD+						
Group1	15	1.90	0.64	0.17		
Group2	13	1.94	0.52	0.14	-0.19	0.85
LOY+						
Group1	15	1.47	0.37	0.10		
Group2	13	1.64	0.55	0.15	-0.99	0.331
GOAL+						
Group1	15	2.31	0.61	0.16		
Group2	13	2.09	0.52	0.14	0.99	0.332
CWI+						
Group1	15	2.11	0.42	0.11		
Group2	13	2.33	0.58	0.16	-1.14	0.266

+ Pooled variance estimator used.

TABLE VII

T-Test for Participants vs Co-Workers  
Regarding Work Group Behavior Variables

Group1 -- Team Participants Group2 -- Participants' Co-Workers						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>T Value</u>	<u>T Prob</u>
GRPACCT+						
Group1	15	1.95	0.55	0.14		
Group2	41	1.99	0.61	0.10	-0.24	0.81
LEAD+						
Group1	15	1.90	0.64	0.17		
Group2	41	2.10	0.62	0.10	-1.04	0.30
LOY*						
Group1	15	1.47	0.37	0.10		
Group2	41	1.47	0.57	0.09	-0.04	0.97
GOAL+						
Group1	15	2.31	0.61	0.16		
Group2	41	1.92	0.64	0.10	2.01	0.05
CWI*						
Group1	15	2.11	0.42	0.11		
Group2	41	2.40	0.61	0.10	-0.17	0.87

+ Pooled variance estimator used.

\* Separate variance estimators used.

TABLE VIII

T-Test for Non-Participants vs Co-Workers  
Regarding Work Group Behavior Variables

Group1 -- Non-Participants Group2 -- Non-Participants' Co-Workers						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>T Value</u>	<u>T Prob</u>
GRPACCT						
Group1	13	2.12	0.63	0.18	0.74	0.46
Group2	31	1.98	0.50	0.09		
LEAD						
Group1	13	1.94	0.52	0.14	-0.22	0.827
Group2	31	1.98	0.59	0.11		
LOY						
Group1	13	1.64	0.55	0.15	1.78	0.08
Group2	31	1.33	0.51	0.09		
GOAL						
Group1	13	2.09	0.52	0.14	1.11	0.275
Group2	31	1.85	0.71	0.13		
CWI						
Group1	13	2.33	0.58	0.16	1.04	0.30
Group2	31	2.16	0.47	0.08		

+ Pooled variance estimator used.

\* Separate variance estimators used.

TABLE IX

First One-Way Analysis of Variance of Personality Variables

Group1 -- Team Sport Participant Group2 -- Non-Participant						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>F Ratio</u>	<u>F Prob</u>
ACHMOT						
Group1	15	1.13	0.30	0.08	2.20	0.15
Group2	13	0.31	0.33	0.09		
SELF						
Group1	15	3.24	0.71	0.18	0.002	0.97
Group2	13	3.23	0.94	0.26		
ADAPT						
Group1	15	2.43	0.92	0.24	0.01	0.93
Group2	13	2.46	0.78	0.22		
EXTRO						
Group1	15	2.27	0.81	0.21	0.19	0.66
Group2	13	2.13	0.87	0.24		
CR-INTEGRATING						
Group1	15	2.53	0.74	0.19	0.32	0.58
Group2	13	2.69	0.75	0.21		
CR-AVOIDING						
Group1	15	4.80	2.11	0.55	2.01	0.17
Group2	13	3.84	1.28	0.36		

TABLE X

## Second One-Way Analysis of Variance of Personality Variables

Group1 -- Primary Team Participant Group2 -- Co-Worker						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>F Ratio</u>	<u>F Prob</u>
ACHMOT						
Group1	15	1.13	0.30	0.08		
Group2	41	1.44	0.51	0.08	4.68	0.03
SELF						
Group1	15	3.24	0.71	0.18		
Group2	41	3.46	1.07	0.17	0.50	0.48
ADAPT						
Group1	15	2.43	0.92	0.24		
Group2	41	2.44	1.0	0.16	0.0	0.98
EXTRO						
Group1	15	2.27	0.81	0.21		
Group2	41	2.11	0.76	0.19	0.43	0.51
CR-INTEGRATING						
Group1	15	2.53	0.74	0.19		
Group2	41	3.10	1.67	0.26	1.58	0.21
CR-AVOIDING						
Group1	15	4.80	2.11	0.55		
Group2	41	5.44	2.30	0.36	0.88	0.35

TABLE XI

## Third One-Way Analysis of Variance of Personality Variables

Group1 -- Primary Non-Participant Group2 -- Co-Worker						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>F Ratio</u>	<u>F Prob</u>
ACHMOT						
Group1	13	1.31	0.33	0.09	0.20	0.66
Group2	31	1.37	0.46	0.08		
SELF						
Group1	13	3.23	0.94	0.26	0.08	0.78
Group2	31	3.31	0.85	0.15		
ADAPT						
Group1	13	2.46	0.78	0.22	0.22	0.64
Group2	31	2.32	0.94	0.17		
EXTRO						
Group1	13	2.13	0.87	0.24	0.01	0.93
Group2	31	2.15	0.72	0.13		
CR-INTEGRATING						
Group1	13	2.69	0.75	0.21	0.41	0.52
Group2	31	3.90	1.08	0.29		
CR-AVOIDING						
Group1	13	4.85	1.28	0.46	0.95	0.34
Group2	31	4.42	1.95	0.35		

TABLE XII

T-Test for Participants vs Non-Participants  
Regarding Personality Variables

Group1 -- Team Participants Group2 -- Non-Participants						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>T Value</u>	<u>P Value</u>
ACHMOT+						
Group1	15	1.33	0.30	0.08		
Group2	13	1.31	0.33	0.09	-1.48	0.15
SELF+						
Group1	15	3.24	0.71	0.18		
Group2	13	3.23	0.94	0.26	0.04	0.97
ADAPT+						
Group1	15	2.43	0.92	0.24		
Group2	13	2.46	0.78	0.22	-0.09	0.93
EXTRO+						
Group1	15	2.27	0.81	0.21		
Group2	13	2.13	0.87	0.24	0.44	0.67
CR-INTEGRATING+						
Group1	15	2.53	0.74	0.19		
Group2	13	2.69	0.75	0.21	-0.56	0.58
CR-AVOIDING+						
Group1	15	4.80	2.11	0.55		
Group2	13	3.84	1.28	0.36	1.42	0.17

+ Pooled variance estimator used.

TABLE XIII

T-Test for Participants vs Co-Workers  
Regarding Personality Variables

Group1 -- Team Participants Group2 -- Participants' Co-Workers						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>T Value</u>	<u>T Prop</u>
ACHMOT*						
Group1	15	1.13	0.30	0.08	-2.75	0.01
Group2	41	1.44	0.52	0.08		
SELF*						
Group1	15	3.24	0.71	0.18	-0.85	0.40
Group2	41	3.46	1.07	0.17		
ADAPT						
Group1	15	2.43	0.92	0.24	-0.02	0.99
Group2	41	2.44	1.0	0.16		
EXTRO						
Group1	15	2.27	0.81	0.21	0.66	0.52
Group2	41	2.11	0.76	0.19		
CR-INTEGRATING						
Group1	15	2.53	0.74	0.19	-1.26	0.21
Group2	41	3.10	1.67	0.26		
CR-AVOIDING						
Group1	15	4.80	2.11	0.55	-0.94	0.35
Group2	41	5.44	2.30	0.36		

+ Pooled variance estimator used.

\* Separate variance estimators used.

TABLE XIV

T-Test for Non-Participants vs Co-Workers  
Regarding Personality Variables

Group1 -- Non-Participants Group2 -- Non-Participants' Co-Workers						
<u>Variable</u>	<u>No. of Cases</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Std Err</u>	<u>T Value</u>	<u>T Prob</u>
ACHMOT+						
Group1	13	1.31	0.33	0.09		
Group2	31	1.37	0.46	0.08	-0.45	0.66
SELF+						
Group1	13	3.23	0.94	0.26		
Group2	31	3.31	0.85	0.15	-0.28	0.78
ADAPT+						
Group1	13	2.46	0.78	0.22		
Group2	31	2.32	0.94	0.17	0.47	0.643
EXTRO+						
Group1	13	2.13	0.87	0.24		
Group2	31	2.15	0.72	0.13	-0.09	0.93
CR-INTEGRATING+						
Group1	13	2.69	0.75	0.21		
Group2	31	3.90	1.08	0.29	-0.64	0.52
CR-AVOIDING+						
Group1	13	4.85	1.28	0.46		
Group2	31	4.42	1.95	0.35	-0.97	0.34

+ Pooled variance estimator used.

\* Separate variance estimators used.

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REPORT DOCUMENTATION PAGE

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## Abstract

This research study addressed the question of whether U.S. Air Force female personnel with extensive histories of team sport participation differ from female personnel with little or no experience in organized sports. The population of interest was U.S. Air Force female personnel stationed in the continental United States.

The women in the two groups were compared on both work group behavior characteristics and personality traits. The work group behavior variables of interest were group acceptance, leadership style, goal orientation, loyalty, and degree of competition exhibited within the work group. Similarly, the personality traits investigated were as follows: achievement motivation, self-confidence, adaptability, extroversion, and the integrating and avoiding approaches to conflict resolution.

Data used in this study was collected using two different survey instruments. Each of the 28 women studied reported on her perceptions of her behavior in her work group and her personality. In addition, at least two co-workers of each female reported their observations of her on the same variables.

No statistical differences were found between the team participants and the non-participants on the variables of interest in this study. However, further comparison of the team participants with their co-workers revealed significant differences between the two groups on the variables achievement motivation and goal orientation. Several recommendations are given for further exploration of the research questions put forth in this study.

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