EFFECT OF TASK APPROPRIATENESS, SOCIAL COMPARISON, AND FEEDBACK ON FEMALE GOALS, PERFORMANCE, AND SELF-CONFIDENCE WITH A MOTOR TASK

DISSERTATION

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William P. Adler, M.A.

Denton, Texas

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Lenney (1977) concluded that achievement gender differences were predicted by females' lower self-confidence and expectancies in competitive situations, identifying three variables that mediated female self-confidence in achievement situations, (1) task appropriateness, (2) social comparison, and (3) feedback. The present study manipulated all three mediating variables with 240 undergraduate 18-25 year old female subjects with the pursuit rotor task that requires tracking a moving (40 rpm's) white light with a hand-held stylus for 60 seconds. Response measurement was based upon time on target. Subjects were tested over five trials while setting goals for each trial. Females were randomly assigned to a male appropriate, female appropriate, or gender neutral task condition, a competition or alone condition, and to one of four feedback conditions (no feedback, feedback about own performance only, feedback about own performance that provided the perception that subject was performing better than an opponent and/or average on each trial, or feedback
about own performance that provided the perception that subject was performing poorer than an opponent and/or average on each of the five trials). Results from the 2 (social comparison) X 3 (task appropriateness) X 4 (feedback) ANOVA were contradictory to previous findings (Corbin, 1981; Petruzzello & Corbin, 1988) as females performed significantly better in competition than alone. Data support the conclusion that presentation of clear and unambiguous feedback enhanced female self-confidence (Corbin, 1981; Petruzzello & Corbin, 1988; Lenney, 1977). Data also provide null findings for the task appropriateness condition which contradicts the previous research (Corbin, 1981; Lenney, 1977) in that females perceiving the task as male appropriate did not exhibit less self-confidence and perform poorer than when the task was perceived as either female appropriate or gender neutral. Conclusions reflect methodological differences from previous research and changes in gender role identification that have significantly impacted on female self-confidence and performance in competitive situations.
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CHAPTER I

INTRODUCTION

The existence of significant physiological differences between males and females beyond the age of puberty in terms of such factors as body and structural size, body composition, strength, basic metabolic rate, and cardiovascular fitness have been found by several researchers (Nieman, 1986; Shaver, 1981; Wilmore, 1982). However, the question of whether men and women are different in psychological skills that influence achievement task performance has been resistant to any conclusive determination (Deaux & Major, 1987). The early research provided some evidence for distinct psychological differences in favor of the males. For example, Crandall (1969), using novel intellectual tasks, Montanelli and Hill (1969) and Battle (1966), using a novel marble game, Rychlak and Eacker (1962), using novel manual dexterity tasks, and Feather and Simon (1973) and House and Perney (1974), testing subjects with anagrams, found that females' self-confidence and performance were lower than males in competitive achievement situations as opposed to noncompetitive situations (working alone). In all of these studies, lowered female self-confidence reflected lowered
expectations prior to performance and decreased performance for females when compared with the performance of males.

The conclusion that males were superior to females in numerous achievement situations was seemingly supported by the disproportionate number of males and females employed in key achievement situations (Lenney, 1977). Specifically, in 1970, none of the major professional occupations, such as medical, legal, judicial, or industrial management had female populations greater than 10 percent (Council of Economic Advisors, 1973). Thus, on the surface, the data provided spurious evidence for numerous achievement differences between males and females (Eagly & Steffen, 1984; Lenney, 1977).

Lenney (1977), however, attributed these low achievement figures among women to greater social pressures and discrimination rather than any real deficiencies in ability. Women remained in low paying and low prestige positions as a result of those socialization barriers that did not provide an atmosphere that fostered advancement for women (Stephens & DeNisi, 1980; Taylor & Ilgen, 1981). In essence, the roles prescribed early in the socialization process, not the skill levels, were different for males and females (Eagly & Steffen, 1984; Lenney, 1977; Maccoby & Jacklin, 1974). In the developmental process, males were recipients of greater reinforcement for performance of
achievement tasks while females were socialized to believe that high standards of achievement were not as important for them as it was for males (Berger, Rosenholtz, & Zelditch, 1980; Lenney, 1977; Maccoby & Jacklin, 1974). Interestingly enough, Howe and Ahlum (1973) and Patterson and Sells (1973) reported that even though women were entering graduate school with as good or even better achievement records as males, women were apparently setting lower educational and achievement goals (Howe & Ahlum, 1973). These employment figures presented by the Council of Economic Advisors (1973) did not present an accurate assessment of psychological skill levels for both males and females. Rather they only reflected the differential opportunities available for males and females (Lenney, 1977).

Maccoby and Jacklin (1974), in their classic review of the literature on achievement behaviors and gender differences, concluded that there were only minimal achievement differences between males and females. Specifically, females outperformed males on verbal ability tasks and males outperformed females on quantitative and spatial ability tasks. They found few significant differences between males and females in most achievement related characteristics, such as intellectual and academic performance, achievement motivation, and self-esteem.
Feingold (1988) most recently has supported this position, stating that gender achievement differences have decreased dramatically over the past 25 years and few cognitive gender differences between males and females remain. Gilligan (1982) and Eagly (1987), however, have proposed that a wide gap still exists between males and females in many gender-related achievement behaviors with females outperforming males on spelling, grammar, and perceptual speed while males have demonstrated superior ability in mechanical aptitude, spatial visualization, and mathematical skills. The argument continues with both sides presenting strong cases, one emphasizing the similarity of males and females with only minimal achievement differences (Feingold, 1988; Maccoby & Jacklin, 1974) while the other argument concludes the existence of major psychological differences between males and females in achievement situations (Eagly, 1987; Gilligan, 1982).

Although Maccoby and Jacklin (1974) did not find many significant performance differences between males and females, and in fact females described their own feelings of competence to be equal to those of males in most cases, females still, however, expressed less self-confidence prior to the performance on many of these achievement tasks. In essence, there was a higher probability for women to express lower levels of self-confidence than males.
in achievement situations regardless of performance. Bardwick (1971) had stated that, "women have lower self-esteem than men as a result of the devaluing of a woman's performance which was opposed to the higher value placed upon a male's performance" (p. 155). Thus, Maccoby and Jacklin (1974) concluded that self-confidence, as defined in terms of expectancies and self-evaluation of performance, was consistently lower among females than males in achievement situations. The implication was that any possible gender-related differences in achievement situations (not including physiological differences) might be attributable to differences in self-confidence between males and females. That is, psychological achievement differences between males and females were a product of socialization and role differentiation more so than any genetically determined factors. The socialization process provided women with numerous barriers to achievement so that the results were lowered self-confidence to perform achievement tasks (Lenney, 1977). Thus, Maccoby and Jacklin (1974) concluded that lowered self-confidence for females was an important predictor of performance differences between males and females in achievement situations.

Lenney's (1977) review of gender-related behavior in achievement situations supported Maccoby and Jacklin's
(1974) conclusion that existing differences between males and females in achievement situations were based on females exhibiting lower self-confidence and expectancies than males in competitive situations. If female performances were assessed in a noncompetitive environment (working alone), then females performed at significantly higher levels than in a competitive environment as well as exhibiting higher levels of self-confidence prior to that performance. It was the presence of competition that predicted reduced self-confidence for females and concomitant reductions in performance expectancies (Crandall, 1969; Feather & Simon, 1971, 1973; House & Perney, 1974; Montanelli & Hill, 1969).

Along with supporting Maccoby and Jacklin's (1974) hypothesis describing the relationship between female self-confidence and achievement behaviors, Lenney (1977) further clarified the self-confidence/performance relationship by identifying three situational variables that mediated female self-confidence in performance situations relative to the self-confidence and performance of males. These variables were (1) task appropriateness, (2) presentation of clear, unambiguous feedback, and (3) social comparison. Lenney (1977) noted that female self-confidence, expectancies to perform well, and the actual performance of an achievement task were dependent upon the presence and/or
absence of these conditions. Assuming no gender advantage due to physiological differences, the presence of these situational variables mediated female self-confidence to enhance the performance of achievement tasks.

**Variables Affecting Female Self-Confidence**

The first variable influencing female self-confidence and performance is task appropriateness. That is, when females perceive a task as female appropriate (gender bias for performance favors females) or gender neutral (there is no gender bias favoring either gender in performance), then female self-confidence and concomitant performance is enhanced in a competitive situation (Lenney, 1977). Stein, Pohly, and Mueller (1971), testing 6th grade boys and girls with three paper and pencil tasks, manipulated all three gender appropriate conditions (male, female, or neutral). They found no change in boys performance and expectancies in any gender condition, but girls expectancies and performance were significantly lower in the male appropriate task condition. Stake (1976), using a digit symbol task defined as gender neutral by the experimenter, found no differences between males and females based on a discrepancy score (goal minus performance). Identification of the task as gender neutral raised female self-confidence and performance when compared to females who perceived the task as male appropriate.
Deaux and Farris (1977), using anagrams with college students, found significant differences in expectancies and performance between males and females when the task was labeled as male appropriate as opposed to being labeled as female appropriate. When the task was identified as male appropriate, female expectancies and performance were significantly lower than for those subjects who were instructed that females performed this task better than males. In addition, Hackett and Campbell (1987), testing subjects with anagrams (task designated as gender neutral) found no gender differences in self-confidence and performance for females when the task was described to subjects as gender neutral. Finally, Meeker and Weitzel-O'Neill (1977) reviewed the literature on task appropriateness, concluding that tasks perceived as male appropriate produced differences in performance and self-confidence favoring males because of males higher status in achievement situations (a product of the socialization process). This higher status, in turn, led males to exhibit greater expectancies for success in the performance of such tasks (Bardwick, 1971). Thus, Lenney's (1977) conclusion that the gender labeling of a task (as either gender neutral or female appropriate) positively mediated female self-confidence and performance has received a great deal of empirical support.
The second situational variable affecting female self-confidence and performance is the presentation of feedback. When females are provided with clear, unambiguous, and immediate feedback about the specifics of their performance, the probability of greater female self-confidence and performance in competitive situations is enhanced (Lenney, 1977). For example, Hill and Dusek (1969) found that social reinforcement (both verbal and nonverbal) raised expectations and performance for girls in a puzzle-solving task while conditions of nonreinforcement provided no change in expectancies or performance for girls. Similarly, Feather and Simon (1973), testing college students with anagrams, presented feedback for both success and failure on the task. They found success feedback enhanced female expectancies and performance significantly greater than the presentation of success feedback for males. McMahon (1973) and House and Perney (1974), also using anagrams with 10th graders and college students, found that external feedback of success predicted greater success for females in terms of raising expectations (self-confidence) and performance. Both McMahon (1973) and House and Perney (1974), however, found that success feedback also raised the expectancies and performance for males. Thus, even though feedback can be beneficial in terms of enhancing self-confidence and
performance for both genders, Lenney (1977) concluded that feedback provided females more so than males with greater expectations and self-confidence in achievement settings. Consequently, the presentation of clear and precise feedback appears to be a powerful tool for raising female expectancies for success in achievement situations (Corbin, Stewart, & Blair, 1981; Lenney, 1977).

The third variable mediating female self-confidence and performance in competitive situations is social comparison or the presence of a competitive environment. The social comparison literature concludes that females tend to perform poorer than males in competitive situations (Lenney, 1977; Lenney, Browning, & Mitchell, 1980). The data indicate that females, under conditions of competition (perceived evaluation of their performance), produce poorer performance as well as demonstrating lower self-confidence than when performing alone or in a noncompetitive environment. Croxton, Chiacchia, and Wagner (1987), for instance, found that males expressed more self-confidence than females before a competitive sport performance. Similarly, Dickinson, Sebastein, and Taylor (1983) have indicated that females demonstrate poorer self-confidence and performance than males when competing with a novel competitive game situation. House (1974), testing college students with anagrams, found that females working in a
competitive situation (same and cross-gender) reported lower expectancies, confidence, and performance than females working alone while males experienced no decrements in expectancies, confidence, or performance whether working alone or in a competitive situation. Benton (1973), using opposite gender competition on a "resource allocation" task (verbal problems that forced each subject to negotiate and bargain in a competitive decision making process in order to win money) found that women had lower expectancies than males to win money in this competitive environment.

From their review of the social comparison literature, Maccoby and Jacklin (1974), Lenney (1977), and Lenney, Browning, and Mitchell (1980) concluded that females compare themselves less favorably in competitive situations in terms of both self-confidence and performance so that social comparison affected females more adversely than males. Therefore, in situations in which females do not expect their performance to be compared with others in a social comparison situation (competing against an opponent or standard of performance), then female self-confidence is raised to a level equal to that of males (Lenney, 1977). Thus, females' self-confidence quite often is lower than males when there is any suggestion that their work will be compared and/or evaluated by others (Lenney, 1977; Maccoby & Jacklin, 1974).
Self-Confidence and Motor Performance

Having identified self-confidence as a critical psychological variable mediating gender-related behavioral differences between males and females in achievement behaviors (Lenney, 1977; Lenney, Browning, & Mitchell, 1980; Maccoby & Jacklin, 1974), sport psychologists have attempted to extend these findings, studying the relationship between self-confidence and gender-related behavioral differences in motor performance settings. For example, Corbin and Nix (1979) studied the relationship of the three situational variables, task appropriateness, presentation of unambiguous feedback, and social comparison (Lenney, 1977) with motor skill performance. Male and female fourth through sixth graders were asked to gender-type or identify the gender appropriateness of three motor skill tasks. These tasks included the bicycle game (ergometer), which is a task that requires the subject to pedal as fast and as far as possible in 15 seconds, the pong game which is an electronic video game that requires the perceptual motor skill of hitting (electronically) a ball against a wall in order to score points in the game, and the balance game or stabilometer which requires balancing on an elevated board for 15 seconds. All subjects, in this design, were asked to sex type these tasks (rate which gender, if either, should perform the task better) before performing them. Female
self-confidence and performance were lower for those activities sex-typed as male appropriate (bicycle game and pong game), but not in the case of the balance game which was rated as gender neutral by a large majority of the subjects. Corbin and Nix (1979) also examined the impact of feedback on self-confidence and performance in this study. They found that girls exhibit less self-confidence than boys prior to competition, but in those cases in which girls achieved success (manipulated success/failure feedback), self-confidence for girls was no different than boys. Thus, just as Lenney (1977) had predicted, the perception of the performance of a gender neutral motor task and presentation of feedback enhanced levels of self-confidence and performance for females in this cross-gender competition.

Corbin, Stewart, and Blair (1981) partially replicated Corbin and Nix (1979), examining the effects of feedback on self-confidence of females through the use of the balance game (stabilometer). In this design, the experimenters controlled the gender appropriateness of the task (subjects were told that the task was gender neutral) and social comparison (subjects performed alone). The results indicated that when females performed a gender neutral task in a noncompetitive or nonevaluative situation (alone condition), self-confidence ratings did not differ from those of males. Thus, in this design, two of the three
situational variables, task appropriateness (gender neutral task) and social comparison (performing alone), were manipulated to create conditions more favorable for females in terms of expectancies (self-confidence) and performance of the task. These results supported Lenney's (1977) model in that identification of task appropriateness (gender neutral task) and performing in a noncompetitive situation increased self-confidence and performance for females to levels similar to that of males.

Corbin (1981), continuing the research with those variables that mediate female self-confidence, used another gender neutral task (TV ping pong game) and found that females expressed post performance confidence equal to males after performing against an opponent (cross-gender competition) perceived to be poorer in ability, but females were significantly less confident after performing against an opponent perceived to be better in ability. In this study, it was the feedback manipulation that mediated female self-confidence. When females received unambiguous feedback, giving them the perception of performing better than their opponent, both self-confidence and performance standards were elevated. Conversely, when females received unambiguous feedback, giving them the perception of performing poorer than their opponent, both self-confidence and performance standards were lowered. Thus, even in a
competitive situation, the presentation of situation criticality feedback (performing better than an opponent) enhanced female self-confidence and performance with a gender neutral motor task. The significant finding was that the presentation of situation criticality feedback (females perceived that they were performing better than an opponent) overshadowed the presence of a competitive environment in terms of self-confidence and performance.

In another study testing Lenney’s (1977) model with motor skills, Corbin, Landers, Feltz, and Senior (1983) discovered that females made lower performance estimates on a male-oriented task (holding dominant leg in horizontal position for as long as possible) than males in a cross-gender competition. Thus, with the perception of a male-oriented task, female self-confidence was not improved when females competed against male opponents (social comparison). In this case, the presence of social evaluation and the perception of the male-oriented task supported Lenney’s (1977) contention that females exhibit lower self-confidence under certain conditions. The interesting finding, in this design, was that there were no significant performance differences between males and females, only self-confidence differences. Thus, it can be argued that females can perform as well as males even if they have lower self-confidence.
More recent research has continued to investigate the three situational variables that mediate female self-confidence and performance with motor skills. For example, Petruzzello and Corbin (1988), using two gender neutral tasks (stabilometer and pursuit rotor), had female subjects rate how they perceived themselves performing these two tasks that were demonstrated to them by an "expert" performer through a video presentation. After subjects rated their own confidence levels to perform each of these tasks, they were divided into high and low self-confidence groups. Performance on these two tasks was then compared while presenting all subjects with accurate feedback. The results indicated that precise feedback improved confidence for low confidence females in competition. Specifically, the low self-confidence females performed better and increased their confidence and expectancy levels upon receiving performance feedback after each trial for both tasks. However, the high self-confidence subjects remained at a constant level of confidence even with the presentation of feedback about their performance. In essence, the presentation of feedback mediated the competitive or social comparison situation for females in this design. Although feedback enhanced self-confidence for females in a competitive situation, this self-confidence did not generalize to a second or different
motor task. Performing one motor skill was independent of the other task for females (Petruzello & Corbin, 1988).

Stewart and Corbin (1988) compared males and females in a gender neutral task (stabilometer) in a noncompetitive situation (subjects performed task alone) and found that both males and females in low preperformance self-confidence groups had lower postperformance self-confidence when feedback was not presented. However, low preperformance self-confidence subjects, both males and females, exhibited self-confidence equal to those in the high preperformance groups after the presentation of feedback. Even though both males and females improved self-confidence and performance after the presentation of feedback, females exhibited significantly greater increases in both self-confidence and performance than males. Thus, these results indicate the importance of the presentation of clear and precise feedback for mediating self-confidence for both males and females in competitive situations.

The research had demonstrated that gender-related behavior differences (self-confidence, expectations, and performance) in motor performance settings appear to be influenced by the three situational variables suggested by Lenney (1977). Specifically, when females perceive the motor task to be gender neutral or female appropriate, or when females receive clear, unambiguous feedback, or
perform in a nonevaluative situation, then higher levels of self-confidence and greater performance expectancies are achieved by females in the performance of a series of motor skills. The more of these conditions that can be successfully fulfilled, the greater the probability of enhancing female self-confidence and performance in competitive situations (Lenney, 1977).

The present design continued to study the relationship between female self-confidence and performance with a motor skill, but it added two important new dimensions. The first significant addition was the manipulation of all three situational variables that mediate female self-confidence in achievement situations in one design. The manipulation of task appropriateness, feedback, and social comparison at the same time was unique in that all previous designs studying Lenney's (1977) situational variables that mediate female self-confidence have manipulated only one or two of the three situational variables at any one time. In manipulating all three situational variables that mediate female self-confidence in achievement situations, the present design controlled for task appropriateness by using a gender neutral motor task, the pursuit rotor (Corbin & Nix, 1979; Petruzzello & Corbin, 1988). Specifically, subjects were randomly assigned to either a male, female, or gender neutral task appropriate condition, with all
subjects performing the same gender neutral task. Secondly, subjects performed in either a competitive (same-gender competition) or noncompetitive situation (alone) to examine the mediating effects of social comparison on performance, self-confidence, and goals for females (Petruzello & Corbin, 1988).

Finally, the presentation of feedback was manipulated with four feedback conditions. The first feedback condition was the no feedback group in which subjects received no feedback at all. In the second feedback condition, subjects received accurate feedback about their own performance only. For the third feedback condition, subjects received accurate feedback about their own performance and manipulated feedback about their opponent's or an average performance that enabled them to perceive they were ahead in their performance of the task. The fourth feedback condition had subjects receive accurate feedback about their own performance and manipulated feedback about their opponent's or an average performance that enabled them to perceive they were behind in their performance of the task. This feedback manipulation provided an assessment of Lenney's (1977) feedback criterion that mediates female self-confidence and performance in achievement situations. The presentation of feedback also served to heighten the competitive condition
as well as comparing the effects of situation criticality feedback (ahead/behind) on self-confidence and performance for females.

The other new dimension, in this design, was the measurement of goals as well as performance and self-confidence with females. As noted previously, research has indicated strong evidence for the mediating effects of task appropriateness, feedback, and social comparison on female self-confidence and performance. Therefore, it was hypothesized that there would be a similar relationship between these three situational variables and goal setting. Specifically, just as the identification of task appropriateness, presentation of precise feedback, and performing in a noncompetitive environment provide females with greater levels of self-confidence, these three variables should facilitate goal-setting abilities for females. That is, as levels of self-confidence were increased for females, this should have, in turn, raised their goals and subsequent performance (Festinger, 1942; Ryan, 1970).

Goal Setting Research

Before analyzing the relationship of goals, confidence, and performance for motor skills, a historical overview of the goal setting literature would provide some important background into the relationship between goal
setting and performance. Locke, Shaw, Sarri, and Latham (1981) provide an excellent review of the goal setting research, concluding that goals are very effective in improving performance. Some of the major findings from this review include that specific goals are more effective than vague or general goals in improving performance. Locke et al. (1981) found that in 99 of 110 goal setting studies, the data supported the hypothesis that specific goals provide for better performance than vague goals or no goals (Bandura & Simon, 1977; Ivanciević, 1977; Locke, 1966; Locke, Mento, & Katcher, 1978). Locke (1966), using a creative word task, also determined that specific goals improve performance more than "do your best" goals (Weinberg, Bruya, & Jackson, 1985). Locke (1968) noted that persistence in performance is enhanced when the individual is able to identify the exact outcomes (goals) that need to be achieved. Individuals need specific outcomes in order to achieve maximum performance (Locke & Latham, 1985).

Another feature of goals is that those difficult and/or challenging goals provide better performance than easy goals (Bavelas & Lee, 1978; Locke, 1968; Latham & Yukl, 1975; Latham & Locke, 1975; Locke, 1968). Assuming that one possesses the necessary ability (motoric capability) to perform a specific task, goals that are challenging lead to maximum performance. Locke (1966;
1968) noted that difficult goals improve performance over all trials even though the goal was being achieved on less than 10 percent of the trials. Locke concluded that goals activated energy expenditure so that the more difficult the goal, the greater the energy expenditure and the greater the probability for elevating one's performance standards.

Still another significant goal setting research finding reflects the impact of short-term goals for effectively reaching those long-term goals. Short-term goals serve as an avenue to the long range plans (Bandura & Simon, 1977; Bell, 1983; Carron, 1984; Gould, 1983; Locke, Cartledge, & Knerr, 1970; O'Block & Evans, 1984). Developing short-term goals allows the long-term goal to seem less remote, keeps the long term objectives in sight, and decreases the probability of extinction in the early stages of performance (Locke & Latham, 1985).

The goal setting literature also indicates that goal setting is more powerful when feedback is provided, concerning one's performance relative to his or her goal (Locke, Shaw, Saari, & Latham, 1981; Saari & Latham, 1982). Feedback implies performance measurement which is a necessary precursor for goal setting even in those situations in which no formal program has been established (Saari & Latham, 1982). These are some of the parameters that goal setting research has established to raise levels
of performance in both the industrial and academic environments. Goal setting provides direct effects on performance while giving one the power of control and self-direction (Browne & Mahoney, 1984; Locke & Latham, 1985).

With the proliferation of goal setting research in industrial and organizational settings, sport and motor performance has become an area of study with the application of these goal setting techniques. Locke and Latham (1985) presented one of the first reviews of goal setting in the sport environment, concluding that the sport and motor skill performance measures provided a rich environment for the application of goal setting techniques. They also concluded that these techniques have been quite effective in the early applications. For example, Locke and Bryan (1966), using a motor coordination task, found that specific and difficult goals were more effective than simply "do your best" goals. Botterill (1977), testing subjects on an endurance task (hand grip dynamometer) found that specific, difficult goals provided better results for the goal group than the group with simply "do your best" instructions. Barnett and Stanicek (1979), measuring archery students in a field experiment, found better performance with the goal group than a control group. Burton (1983), in another field experiment, found that varsity swimmers improved their performance times
significantly more than a control group of swimmers during the course of the swim season. More recently, Hall, Weinberg, and Jackson (1987), using a leg endurance task, and Weinberg, Bruya, Longino, and Jackson (1988), measuring school children with sit-ups have also provided strong evidence supporting the effectiveness of goal setting techniques for improving performance in sport and motor tasks.

Hall and Byrne (1988) have provided a thorough review of the goal setting and sport/motor performance research, concluding that the data are equivocal as to the effectiveness of goal setting techniques in this area. The overwhelming support generated by Locke's (1968) goal setting approach in both the organizational and academic environments has not been found when applied to sport and physical activity. For example, Hollingsworth (1975) and Barnett (1977), testing jugglers, Hall, Weinberg, and Jackson (1983) using a circuit training task, Stitcher, Weinberg, and Jackson (1983), using a leg endurance task, and Weinberg, Bruya, and Jackson (1985) and Weinberg, Bruya, Garland, and Jackson (1987), testing subjects with sit-ups found no significant differences in performance between specific goal groups versus do your best and control groups. Thus, the data have generated some controversy as to the effectiveness of goal setting
techniques with sport and motor skill performance. In some cases, performance has been enhanced by the setting of specific goals while in others, goal setting has not enhanced performance (Hall & Byrne, 1988; Locke & Latham, 1985).

Goal Setting and Situational Variables

The research on goal setting, however, does provide some valuable insights into the relationship between the situational variables that mediate female self-confidence and goal setting. One conclusion from the goal setting research that has been consistent is that the effectiveness of goal setting techniques is dependent upon performance feedback (Locke, Shaw, Saari, & Latham, 1981; Locke & Latham, 1985). For example, providing some type of performance information is critical for the success of goal setting procedures. Both Kim (1984) and Kim and Hammer (1976) found that feedback was effective for both males and females in sales management positions in reaching challenging sales goals. Both studies charted sales goals for these personnel and feedback was assessed as a critical determinant of successful attainment of these goals. Bandura and Simon (1977), testing dieters, found that the most effective weight loss groups contained those subjects who set and maintained their goals. Similarly, Erez (1977), testing both males and females with clerical
aptitude tests, discovered that feedback assisted the achievement of goals more than the nonfeedback group. Furthermore, Campion and Lord (1982) conducted a longitudinal study of goal setting and performance with college males and females. Results indicated that those students presented with feedback about their performance along the way toward the long-term goals achieved greater success rates than those subjects who only set long-term goals without any external source of feedback. Finally, in a series of reviews of the feedback/goal setting research, Beekr and Love (1983), Campbell (1982), Locke and Latham (1985), Locke, Shaw, Saari, and Latham (1981), and Mento, Steel, and Karren (1987) all have provided strong evidence for the enhancement of goal setting and performance through the administration of feedback.

In the area of sports and motor skills, Schmidt, Kleinbeck, and Brockman (1984) found that feedback improved goal setting standards and performance with males on a pair of motor skills (pursuit rotor and reaction time). In addition, Hall, Weinberg, and Jackson (1987), testing males on a hand dynamometer task, found significantly better performance by both the concurrent and terminal goal groups when compared to the "do your best" group. Further, Anderson, Crowell, Doman, and Howard (1988) found that feedback improved goal setting standards and performance
with collegiate hockey players in terms of individual on-ice performance in several offensive and defensive categories of hockey. Finally, Adler and Weinberg (under review), using the ring peg motor task, found that the presentation of situation criticality feedback in terms of subjects being ahead enhanced performance for females in both same and cross-gender competition.

Bandura and Simon (1977) added another important dimension to the feedback and goal setting/performance relationship, emphasizing the application of feedback on a trial-by-trial basis. Specifically, goal setting techniques were most powerful when subjects received their performance feedback after each trial (proximal feedback) as opposed to terminal feedback (distal feedback). The presentation of the proximal feedback provided motivational and regulatory effects for subjects, allowing them a continuous and accurate assessment of their performance along with the necessary time to make adjustments to both the goals and concomitant performance. Thus, the application of feedback on a trial-by-trial basis appears to help in the setting of short-term goals which, in turn, enhances performance. The presentation of feedback takes on additional significance, in the present design, as it is one of the three situational variables mediating female self-confidence in competitive settings (Lenney, 1977) and
one of the three variables that will be manipulated. The manipulation of feedback included one condition in which subjects will receive no feedback about their own performance or their opponent's performance, in another condition subjects received accurate feedback about their own performance only, and in still another set of conditions subjects received accurate feedback about their own performance plus trial-by-trial situation criticality feedback (informing subjects that they were either ahead of or behind an opponent or a standard of performance).

Based upon the predictions of Bandura and Simon (1977), Lenney (1977), and Maccoby and Jacklin (1974), females receiving feedback in the present study would set higher goals and achieve higher performance standards than those subjects receiving no feedback. In addition, the present design could help shed some light on the contradictory data that exist for the presentation of situational criticality feedback in motor skills. Specifically, Weinberg, Richardson, and Jackson (1982), using a muscular endurance task, presented male and female subjects with situation criticality feedback (ahead or behind) and found that both males and females performed better in the behind condition. That is, when told that they were performing poorer than an opponent on the first trial, the subjects improved their performance on the
second trial. Adler and Weinberg (under review), however, found contradictory results with both males and females. Testing subjects with a ring peg motor skill task, subjects in the ahead condition set higher goals and performed better. The present design tested females with both ahead and/or behind feedback over a series of five trials in order to assess the situation criticality feedback condition (ahead and/or behind) that maximizes both goal setting and performance.

The second variable (gender appropriateness) mediating female self-confidence has drawn little empirical study in relation to goal setting research. Stake (1976) found no significant differences between males and females on goals using a digit symbol task that was described as a gender neutral task. Males and females were setting relatively similar goals in this case even though males were outperforming females. When task appropriateness has been controlled, data provide evidence for a positive effect on female self-confidence and performance. When females perceive a task to be either female appropriate or gender neutral, then performance and self-confidence are increased for females (Corbin, 1981; Corbin, Landers, Feltz, & Senior, 1983; Corbin & Nix, 1979; Corbin, Stewart, & Blair, 1981; Petruzzello & Corbin, 1988; Stewart & Corbin, 1988). Despite the limited research connecting task
appropriateness, goal setting, and self-confidence, the predictions for this mediating variable were generated through the task appropriateness, performance, and self-confidence research as described above. Specifically, identification of a task as either female appropriate or gender neutral had a positive effect on elevating goal setting standards for females, similar to its effect on female performance levels (Corbin, 1981; Corbin, Landers, Feltz, & Senior, 1983; Corbin & Nix, 1979; Petruzzello & Corbin, 1988; Stewart & Corbin, 1988). Thus, task appropriateness was the second of the three situational variables manipulated in this design with the prediction stating that females would set higher goals, reach higher performance standards, and exhibit higher levels of self-confidence when the task was described as either gender neutral or female appropriate.

The relationship between goal setting and competition was another important issue in this design as competition is the third variable mediating female self-confidence and performance (Lenney, 1977). Locke and Latham (1984, 1985) described competition as a form of goal setting, that is goals provide high levels of performance in terms of competing against those standards. Campbell (1982) reviewed the literature on those variables influencing an individual's selection of goals and identified competition
as a significant determinant of the degree of goal difficulty that one selected. The more difficult the assignment, whether competing against an opponent or a standard, the greater the impetus to set higher goals (White, Mitchell, & Bell, 1977). This supported Locke’s (1968) original hypothesis that predicted that competition was a mechanism that encouraged the setting of goals that would probably not be met. Mueller (1983) demonstrated, with a group of intercollegiate swimmers, that competition affected performance by raising goal standards. The tougher the competition, the higher the goal standards set by these swimmers. Locke, Latham, and Erez (1988), in a review of the goal setting and competition relationship provide evidence for competition as an important factor in strengthening one’s commitment toward goals. The predictions for this third mediating variable of female self-confidence were that females would set higher goals, achieve higher performance standards, and demonstrate higher levels of self-confidence when working alone (noncompetitive environment) than in a competitive setting.

**Goals and Self-Efficacy**

The relationship between goals and self-confidence is another critical area of study in this design. Specifically, how does self-confidence affect goal setting abilities? Can successful achievement of goals enhance
self-confidence or do high levels of self-confidence enable individuals to set and achieve high goal standards? Bandura’s (1977) self-efficacy theory has been used extensively as an explanation for this confidence/goal setting relationship. Self-efficacy, as viewed by Bandura (1977, 1982), is a cognitive mechanism which mediates behavioral responses. The theory proposes that psychological procedures alter the strength and level of the belief that a given activity can be successfully executed (Feltz, 1982). It is these efficacy expectations that affect choice of activities, the amount of effort expended, and ultimately, performance.

Bandura (1977, 1982, 1986) identified the term "self-efficacy" as the degree of the strength of conviction to execute a certain level of performance or to produce a specified outcome. However, proper incentives must be present and the individual must be physically (motorically) capable of executing the appropriate response for self-efficacy to be a determinant of behavior. Under these conditions, Weinberg, Gould, and Jackson (1979) have noted that self-efficacy expectations will change depending upon the situation, the task, and the individual’s previous experience, supporting Bandura’s notion that self-efficacy is a situation-specific variable. Thus, self-efficacy theory acknowledges that it is the individual’s personal
assessment of feelings that determine the amount of effort and persistence in performing a specific task (Bandura, 1982). Bandura (1977) has argued that an individual's performance will be predicted by one's expectancies of that performance (based upon previous performance) and that it is the appraisal of those expectancies that provide feelings of self-efficacy to successfully perform the task.

Working from Bandura's (1977) theory, self-efficacy expectations are achieved from four sources: (1) personal accomplishments/direct mastery, (2) verbal persuasion, (3) vicarious experiences/modeling, and (4) physiological arousal. Personal accomplishments (direct mastery) are seen as the most dependable source of efficacy information because of their foundation in personal mastery (Feltz, 1982). Bandura (1982) emphasized this particular point with the statement that, "mastery expectations influence performance and are, in turn, altered by the cumulative effects of one's efforts" (p. 194). Feltz, Landers, and Raeder (1979) examined the effects of different types of modeling on self-efficacy and subsequent back-dive performance. The results confirmed Bandura's direct mastery statement as the participant modeling group raised efficacy expectations and improved performance significantly more than either live or videotape modeling. Thus, these results supported Bandura's contention that
performance based treatments, such as participant modeling, are the most influential efficacy information sources.

In light of the notion that self-efficacy is a mediator of performance, it is not surprising that sport psychologists have been attracted to this concept as a plausible explanation of the performance/confidence relationship. The research has supported a positive relationship between self-efficacy and performance, the stronger the feelings of self-efficacy, the greater the persistence to achieve that task (Bandura, 1982; Locke, Frederick, Lee, & Bobko, 1984). In sport and motor skills, Feltz (1982); Feltz and Albrecht (1986); Feltz and Mungo (1983); McAuley and Gill (1983); Weinberg, Gould, and Jackson (1979); Weinberg, Yukelson, and Jackson (1980) and Weinberg, Gould, Yukelson, and Jackson (1981) have all successfully replicated the performance/self-efficacy relationship, demonstrating the greater the self-efficacy of the individual to perform a particular task, the greater the persistence and effort to achieve that task. Therefore, strong feelings of self-efficacy provide greater persistence and effort to achieve those lofty standards of performance (Bandura & Schunk, 1981; Brown & Inoyue, 1978; Schunk, 1981; Weinberg, Gould, & Jackson, 1979). Perhaps the best summary of the self-efficacy/performance relationship has been described by Bandura and Cervone
(1986) with their conclusion that, "the stronger the subjects' perceived self-efficacy that they could meet a challenging standard, the more they intensified their efforts" (p. 108).

The important implication from Bandura's (1977, 1982, 1986) model is that self-efficacy influences future performances and future expectations (goals) for that performance. Thus, in terms of self-efficacy, the achievement of previously established goals (direct mastery experiences) increases one's sense of competence and becomes an agent for increased perceived feelings of self-efficacy (Bandura, 1982, 1986; Bandura & Schunk, 1981). In summary, perceived self-efficacy is an extremely powerful motivational construct (Bandura & Cervone, 1983; Cervone & Peake, 1986; Jacobs, Prentice-Dunn, & Rogers, 1984; Locke et al., 1984; Schunk, 1984).

Since self-efficacy is a result of high levels of competence for performing a task (Bandura, 1977, 1982), Locke and Latham (1985) have provided the necessary link to the goal setting/self-efficacy relationship with their conclusion that goal setting is a technique that can be used to increase self-efficacy (Locke & Latham, 1984, 1985). Locke, Frederick, Lee, and Bobko (1984) confirmed this relationship along with supporting Locke, Shaw, Saari, and Latham's (1981) contention that there is a linear
relationship between goal setting and performance. Testing subjects with a cognitive strategy task, Locke et al. (1984) found that self-efficacy strongly affected the levels of goals, the degree of commitment, and task performance, supporting Bandura's (1982) claim that self-efficacy is an important cognitive mediating variable in performance. Bandura (1982) added, "self-efficacy judgments, whether accurate or falsely, influence choice of activities and environmental settings" (p. 123). Locke et al. (1984) concluded that, "self-efficacy, in addition to its direct effect on performance mediates the relationship of ability and strategy on goal choice" (p. 250). It is through the pursuit of challenging goals that one is able to sustain and enhance high levels of motivation. Goal setting, as a self-reactive influence, provides powerful motivational effects. The stronger the feelings of self-efficacy, the greater the performance, and the higher the setting of goals (Bandura, 1982, 1986; Bandura & Cervone, 1983, 1986; Locke, Frederick, Lee, & Bobko, 1984).

Therefore, the present design examined the relationship between goals, self-efficacy, and performance through the manipulation of all three cognitive mediating variables that influence female self-confidence in achievement situations.

As previously noted, the present design highlights two
unique features with the research which has examined the three situational variables (Lenney, 1977) that have been described to mediate female self-confidence and performance in achievement situations. First, this has been the only design in which all three situational variables (task appropriateness, feedback, and competition) have been manipulated at one time. In terms of a causal model, the manipulation of all three variables provided a stronger cause/effect prediction model for those variables mediating female self-confidence, performance, and goals in achievement settings. In addition, the second special feature was the measurement of goals which adds a new dimension to the female/self-confidence and performance relationship. The addition of goals as a dependent measure could also provide some further evidence into the puzzling goal setting and sport and motor skill performance relationship.

Another feature of this design could be the emergence of potential interaction effects among feedback, social comparison, and task appropriateness. This could provide some new information concerning females' performance, confidence, and goals not uncovered in previous research. Presently, limited data exist for any of the possible interaction effects so that no hypotheses were made. The major implications, however, for gender differences remain
in the main effects, but the possible appearance of interaction effects could provide a significant contribution to the female self-confidence/performance/goals relationship. Thus, the results of this present experiment could provide some direction for future research by further defining those conditions that maximize female self-confidence in achievement situations.
CHAPTER II

METHOD

Subject and Design

Subjects were 240 female volunteers from the University of North Texas. The two major requirements for participation were that subjects ranged in age from 18 to 25 and that English was their first language. These subjects received extra credit toward their final grade in those designated (by the instructor) psychology classes in which extra credit was allowed for participation in research projects.

All subjects were randomly assigned to three separate manipulation conditions. First, all females were randomly assigned to one of three perceived task appropriateness conditions. That is, females were instructed that the task was either (1) male appropriate (subjects were told that males had an advantage in the performance of the task), (2) female appropriate (subjects were told that females had an advantage in the performance of the task), or (3) gender neutral (subjects were told that neither gender had an advantage in the performance of the task). Secondly, all subjects were randomly assigned to one of two social comparison conditions, (1) performing alone or
(2) face-to-face competition, that is performing against another female. Finally, all subjects were also randomly assigned to one of four feedback conditions, (1) subjects were provided no feedback about their own performance or any average performance in the alone competition condition or any feedback about their opponent’s performance in the face-to-face competition condition, (2) subjects were provided accurate feedback about their own performance ONLY in both alone and face-to-face competition, (3) subjects were provided accurate feedback about their own performance plus feedback that informed them they were AHEAD of their opponent in the face-to-face competition condition or AHEAD of the standard for the average college student in the alone competition condition on each of the trials, and (4) subjects were provided accurate feedback about their own performance plus feedback that informed them they were BEHIND their opponent in the face-to-face competition or BEHIND the standard for the average college student in the alone competition condition on each of the five trials. Thus, this was a 3 (task appropriateness) X 2 (social comparison) X 4 (feedback) design.

Measurement Scales

The initial part of the experiment consisted of the completion of the Sport Orientation Questionnaire (SOQ) which is a sport competition inventory designed to assess
competitiveness in sport situations (Gill & Deeter, 1988; see Appendix A). This inventory contains three subscales that measure (1) competitiveness in sport, (2) win orientation in sport situations, and (3) goal orientation in sport situations. The Sport Orientation Questionnaire is a sport-specific measure of personality or individual differences in competitive situations. Gill (1986) has stated that the competitiveness factor reflects an individual’s desire to compete and achieve success while the other two factors, the win orientation, which reflects an individual’s desire to win, and the goal orientation, which reflects setting and reaching personal standards, are associated with outcomes of competition rather than the process itself. The research with this new scale has indicated that males score higher than females on both the competitiveness and win orientation subscales while females outscore males on the goal orientation scale. Interestingly enough, despite the significant gender differences, both males and females have scored high on all three subscales (Gill, 1986; Gill & Deeter, 1988). Specifically, the sport orientation questionnaire was administered, in this design, to examine the correlations between the three subscales and the dependent measures (goals, performance, and confidence) to determine whether setting and achieving goals have greater impact in motor
skill performance than competitiveness or win-orientation for females.

The test-retest correlations for the SOQ are high, including the competitiveness scale (.89), the win orientation scale (.92), and the goal orientation scale (.73). Thus, all three subscales appear reliable over time. Alpha coefficients for internal reliability (consistency) have also been high with competitiveness (.94), win (.85), and goal (.82), all providing evidence for strong internal consistency. Construct validity for the SOQ was conducted through multivariate analyses, revealing that the SOQ does significantly predict those individuals who scored high on the competitiveness scale are more likely to enroll in competitive classes and participate in competitive sports than those individuals scoring lower on the competitiveness scale. All subjects were allowed sufficient time to complete this questionnaire.

Self-Confidence Measurement

The assessment of self-confidence was determined by the subjects’ response to the question, "How confident are you that you can attain your goal?" The subjects evaluated their confidence to achieve their goal on a Likert scale of 1 (very much) to 11 (not very much). Each subject completed this self-confidence measurement after setting a goal for each individual trial.
Apparatus

The motor task selected was tracking on the pursuit rotor, which has been assessed to be a gender neutral motor task, that is, a task that does not provide any inherent advantages for males or females in the performance of the task (Corbin & Nix, 1979; Petruzzello & Corbin, 1988). The operation of the pursuit rotor involves tracking a moving light (white) over a glass cover with a stylus. The stylus has a 12 inch long plastic handle with a 1/8 inch light-sensitive silver tip attached to the end that records the amount of time on track (TOT). The attached timer is a standard electric .001 second timer via a 6 VDC circuit measure. In this design, the disc rotated in a clockwise, circular path at 40 revolutions per minute (rpm’s).

Task Appropriateness

Subjects were randomly assigned to one of three task appropriate conditions. All three conditions tested subjects with the same gender neutral task, the pursuit rotor task (Corbin & Nix, 1979; Petruzzello & Corbin, 1988). However, the pursuit rotor was described to subjects as either a gender neutral task, a female appropriate task, or a male appropriate task, dependent upon the task appropriate condition to which each subject had been randomly assigned. The procedures for this manipulation were to introduce the task appropriateness to
each subject just prior to demonstrating the operation of
the equipment. The experimenter had prepared rationales
for each of the three task appropriateness conditions and
would present the appropriate rationale to each subject
based upon the appropriate task condition for each subject.
The rationales for the task appropriateness were as
follows.

**Male appropriateness task.** In this condition,
subjects were informed that males perform this task better
than females. The experimenter explained that research
provided evidence that males have better tracking skills,
perceptual skills, hand-eye coordination, finite motor
control, and manipulative skills than females. The
subjects were instructed that these were the basic skills
required for the successful performance of this task.
Thus, the subjects were told that for these reasons, males
have a distinct advantage over females in the performance
of this pursuit rotor task.

**Female appropriate task.** In this condition, subjects
were informed that females perform this task better than
males. The experimenter explained that research provided
evidence that females have better tracking skills,
perceptual skills, hand-eye coordination, finite motor
control, and manipulative skills than males. The subjects
were instructed that these were the basic skills required
for the successful performance of this task. Thus, the subjects were told that for these reasons, females have a distinct advantage over males in the performance of this pursuit rotor task.

Neutral task. In this condition, subjects were informed that neither males nor females perform this task with any distinct advantage. The experimenter explained that research provided evidence that both males and females possess the same performance level for the tracking skills, perceptual skills, hand-eye coordination, finite motor control, and manipulative skills that were necessary to perform this pursuit rotor task. Thus, the subjects were told that there was no gender bias in the performance of this pursuit rotor task.

Social Comparison Conditions

Subjects were tested in either an alone condition or face-to-face same-gender competition condition. In the alone condition, subjects were tested under one of four possible feedback conditions which included (1) subjects received NO feedback about their own performance or any average performance, (2) subjects received accurate feedback about their own performance ONLY, (3) subjects received accurate feedback about their own performance as well as manipulated feedback about the average performance for college students which informed subjects they were
AHEAD of the average for each of the five trials, and (4) subjects received accurate feedback about their own performance as well as manipulated feedback about the average performance for college students which informed subjects they were BEHIND the average for each of the five trials.

In the face-to-face competition condition, subjects were also tested under one of four possible feedback conditions, (1) subjects received NO feedback about their own or any opponent’s performance, (2) subjects received accurate feedback about their own performance ONLY, (3) subjects received accurate feedback about their own performance as well as manipulated feedback about the performance of their opponent which informed subjects they were AHEAD of their opponent on each of the five trials, and (4) subjects received accurate feedback about their own performance as well as manipulated feedback about the performance of their opponent which informed subjects they were BEHIND their opponent on each of the five trials.

Situation Criticality Feedback Manipulation

The manipulation of the opponent’s and/or average performance feedback was based on an ahead/behind performance feedback condition (situation criticality). For each of the five trials, subjects in the manipulated feedback condition received accurate feedback about their
own performance while also receiving manipulated feedback about their opponent’s performance (face-to-face competition condition) or the average performance (alone competition condition). This manipulated feedback was based upon a specified time sequence that was determined through a pilot study that tested 50 subjects under the identical conditions as the present design. In this pilot study, the range between the lowest time on target score for any single trial and the highest time on target score for any single trial was 16 seconds. Thus, a 25 percent variance (4 seconds) to 50 percent variance (8 seconds) of the total time on target range from the pilot study was selected as the situation criticality feedback manipulation. This range of time (4 seconds to 8 seconds) would keep the manipulated feedback realistic so that despite receiving manipulated feedback, subjects would be performing under conditions that still allowed them to set realistic (in terms of performance) goals. After determining this feedback manipulation range (4-8 seconds), the experimenter selected five pieces of paper for each of the five times (4, 5, 6, 7, and 8 seconds) and then randomly drew five numbers for the situation criticality feedback. The final determination of the situation criticality feedback for this design was 6, 4, 8, 5, and 6 seconds for trials 1 through 5 respectively. Thus,
dependent upon the specific trial and situation criticality feedback manipulation condition, the appropriate designated amount of time was either added or subtracted from the subject's own score and reported as the opponent's or the average score for that trial. For example, in the ahead/face-to-face competition condition, on trial one, if the subject registered 34 seconds as time on target, then feedback for their opponent's performance on that trial was reported to them as 28 seconds \((34 - 6 = 28)\), whereas in the behind/face-to-face competition condition, on trial one, if the subject registered 34 seconds as time on target, then feedback for his or her opponent's performance on that trial was reported to them as 40 seconds \((34 + 6 = 40)\). Thus, the score for each subject's opponent was solely dependent upon whether one was in the ahead or behind feedback condition, not the actual performance of the opponent. In essence, if subjects were in the behind condition, then they would perceive that they performed poorer than their opponents for each of the five trials. If subjects were in the ahead condition, then they would perceive that they performed better than their opponent for each of the five trials. This same feedback manipulation was employed for reporting average feedback in the alone competition condition with the only difference being that subjects would perceive they were doing better
or poorer than the average performance for each of the five trials.

**Procedures**

Subjects reported to the University's motor learning lab at the scheduled hour. All experimental procedures were explained as each subject read the informed consent (see Appendix B). The standard informed consent form (see Appendix C) was signed by each subject who agreed to participate in the experiment. Following completion of the SOQ by the subjects, the experimenter introduced the testing procedures. Subjects were shown the equipment which was arranged so that the two pursuit rotors were separated by a distance of approximately 10 feet with a protective screening device between them. The screening device prevented each subject from seeing the other subject's pursuit rotor and the performance of the other subject. This enhanced the competition condition as each subject had an awareness of the presence of an opponent even though subjects were not able to see the actual performance of their opponents.

After introducing the mechanics of the pursuit rotor, the experimenter informed subjects of the specific gender appropriateness of the task. That is, the experimenter explained the rationale (see task appropriateness) for the pursuit rotor being either a gender neutral task, female
appropriate task, or male appropriate task. The selection of task appropriateness for each subject was determined through a prearranged random draw. The experimenter provided a careful explanation of the rationale so that each subject understood the particular task appropriateness condition that was to guide his or her goals and performance during the testing phase.

Next, the experimenter demonstrated as well as explained the operation of the pursuit rotor, showing subjects how to use the stylus to track the moving, white light on the pursuit rotor screen. The experimenter instructed subjects that they should begin each trial with the stylus in the center of the screen. Then, when the experimenter told them to BEGIN, the subject should immediately start to track the moving light and attempt to remain on target until the experimenter told them to STOP, at which time the subjects were instructed to return the stylus to the starting position (center of the screen) until the experimenter turned the equipment off. This procedure (turning off the equipment after completion of each trial) avoided any errant time measurement and protected the accuracy of the time on target measurement. The subjects were informed that their final measurement response for each trial would be based upon the time (accuracy) that the stylus remained in contact (on target)
with the light on the pursuit rotor. The subjects were informed that each of the five trials would be 60 seconds in duration and that each subject's final total response would be recorded in the number of seconds that the subject remained on target with the moving light.

After a complete explanation and demonstration of the task, three 60-second practice trials were administered to fully acquaint subjects with the equipment. There were no performance measurements during these first three practice trials. Following the completion of the three 60-second practice trials, the experimenter explained that the next trial, which would also be 60 seconds in duration similar to all the experimental trials, would serve as the baseline measurement for the task. Just prior to this baseline measurement trial, the experimenter explained the type of feedback (if any) that each subject would receive. This was dependent upon the feedback condition for each subject, that is whether subjects were in the no feedback condition, in the own accurate feedback condition, or the competition condition (own feedback plus opponent and/or average performance feedback). All feedback conditions were determined by a prearranged random draw.

It is at this time that the goal setting procedures were also explained to the subjects. Subjects were informed that following the baseline trial and before each of the
five experimental trials they would be asked to set performance goals for the next trial. The subjects were told that they would be provided with either no feedback about their performance, their own feedback only, or for those subjects in the situation critical competition condition, they were informed that they would be provided feedback about an average or opponent’s performance (dependent upon type of competition condition) as well as feedback about their own performance. After receiving their particular feedback (or no feedback in the control condition), subjects were informed that they would be requested to set their goal for the next trial. The subjects were instructed to write their goal for each trial in the appropriate space on the scoring form that would be placed in front of them before each trial. All feedback about one’s own performance and the opponent’s and/or the average performance (dependent upon condition) would be written in the appropriate space on the scoring form. The experimenter informed the subjects that there would be no verbal exchange of performance and/or goal setting data during the actual testing phase. Subjects, in the face-to-face competition, were requested to have no interaction with the other subjects during the experiment. The subjects were also informed, at this time, that they would be asked several questions about their performance and goals for each
of the trials. These questions, which were presented to each subject in written form, were designed to measure the self-confidence (see Appendix D, E, F) of the subjects during performance. The experimenter emphasized that these same procedures would be followed for each of the five trials. Following all of the necessary instructions, the subjects performed each of the five 60-second experimental trials with approximately a three-minute rest period between trials (time included completion of goal setting and self-confidence forms for the next trial). Upon completion of the fifth trial, the subjects were asked to complete a post-experimental questionnaire (see Appendix G, H, I). The questionnaire consisted of several questions designed to determine how much of an influence the performance of their opponent (in face-to-face competition condition) or the average performance (in alone condition) had on the subjects’ own goal setting and performance or whether the subjects were setting goals and performing the task by monitoring their own goals and performance standards during each of the five trials. The final two questions assessed each subject’s estimation of how realistic their own goals were and how satisfied they were with their own performance. All of the post-experimental questions were based on a Likert (1-11) rating scale. After completion of this post-experimental questionnaire,
the experimenter debriefed the subjects, explaining the manipulations (task appropriateness and type of feedback for those in manipulated feedback conditions) while answering all questions.

Statistical Analyses

The statistical analysis for this design was a 3 (task appropriateness) X 2 (social comparison) X 4 (feedback) ANOVA with the three dependent measures of goals, performance, and self-confidence. A post-hoc analysis, using the Newman-Keuls, analyzed the potential significant differences between groups.

Correlational analyses assessed the relationship between goals, performance, and self-confidence. Correlational measures also assessed the relationship between the Sport Orientation Questionnaire and the dependent measures (goals, performance, and self-efficacy). Specifically, these correlations determined which of the three subscales (goal orientation, win orientation, and/or competitiveness) significantly correlated with the dependent measures of goals, performance, and/or self-confidence.
CHAPTER III

RESULTS

Performance

Data were analyzed by a 3 (task appropriateness) X 2 (social comparison) X 4 (feedback) ANOVA with dependent measures of goals, performance, and self-confidence. The results produced a significant social comparison main effect for performance, $F(1, 216) = 4.04, p < .046$ in which females performed better in the competitive situation ($M = 29.29$ seconds) than when performing the task alone ($M = 28.20$ seconds). That is, regardless of task appropriateness or feedback condition, females consistently performed better in competition across each of the five trials than when performing the task alone (see Table 1).

Self-Confidence

The results produced a significant feedback main effect for self-confidence, $F(3, 216) = 4.29, p < .006$. Newman-Keuls post hoc comparisons ($p < .05$) of the four feedback conditions identified significant self-confidence differences between the ahead feedback condition and the no feedback condition (the lower the score on the rating scale, the higher the self-confidence) as shown in Table 2. Subjects receiving success (ahead) feedback ($M = 3.85$)
Table 1

Trail by Trial Performance Means and Standard Deviations for Task Appropriateness, Social Comparison, and Feedback

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exhibited significantly greater self-confidence than subjects receiving no feedback ($M = 5.12$). There was also a significant difference between the own feedback condition ($M = 4.15$) and the no feedback condition ($M = 5.12$). In this case, those females receiving feedback about their own performance exhibited greater self-confidence than females receiving no feedback.

**Goals**

The goal setting data yielded no main effects for any of the three independent variables (task appropriateness, social comparison, and feedback). However, the social comparison main effect for goals approached significance, $F(1, 216) = 3.37, p < .068$. The relevance of this near significant finding is that the effect was in the same direction as the significant social comparison main effect for performance. Specifically, females tended to set higher goals (see Table 3) in competitive situations ($M = 33.01$ seconds) than in the alone condition ($M = 31.34$ seconds).

**Post Experimental Questionnaire**

Univariate analysis (ANOVA) of the post experimental questions provides some interesting interpretations for the goal setting dimension. A significant feedback main effect was found for females' perception of how realistic they believed their goals were, $F(3, 216) = 4.00, p < .008$. Newman-Keuls post hoc comparisons ($p < .05$) indicated that
Table 3

Trial by Trial Goal Means and Standard Deviations for Task Appropriateness, Social Comparison, and Feedback

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the objective success (ahead) feedback subjects ($M = 9.1$) perceived their goals to be significantly more realistic than the no feedback subjects ($M = 7.9$). In addition, the own feedback subjects ($M = 8.8$) also perceived their goals as more realistic than the no feedback subjects ($M = 7.9$). Thus, when females simply received feedback about their own performance or feedback that enhanced their perception that they were outperforming an opponent (competition condition) or an average (alone condition), then these females perceived their goals to be significantly more realistic than those subjects who received no feedback of any type.

Another interesting post experimental finding was a significant feedback main effect for satisfaction with performance, $F(3, 216) = 6.88$, $p < .0001$. Newman-Keuls post hoc comparisons ($p < .05$) found that the objective success (ahead) feedback subjects ($M = 8.4$) were significantly more satisfied with their performance than each of the other three feedback groups, the objective failure (behind) feedback condition ($M = 6.6$), the no feedback condition ($M = 7.2$), and the own feedback condition ($M = 7.2$). Specifically, satisfaction with performance was at its highest level when females were presented with objective success (ahead) feedback. This feedback enhanced their perception that they were
performing better than either an opponent (competition condition) or an average performance score (alone condition). Conversely, satisfaction with performance was at its lowest level when females were presented with objective failure (behind) feedback. This feedback enhanced their perception that they were performing poorer than either an opponent (competition condition) or an average performance score (alone condition).

Analyzing the post experimental question that asked females to describe their perception of the gender appropriateness of the task (after performance of the task) provided some support for the effectiveness of the task appropriateness manipulation. A significant task appropriateness main effect for perception of gender appropriateness was found, $F(2, 216) = 16.32, p < .0001$. The Newman-Keuls post hoc comparisons ($p < .05$) identified significant differences for the ratings of subjects in the female appropriate group ($M = 6.49$) and both the male appropriate group ($M = 5.63$) and the gender neutral group ($M = 5.98$). The post-hoc analysis also found a significant difference between the task appropriateness ratings of the gender neutral subjects ($M = 5.98$) and the male appropriate subjects ($M = 5.63$). However, on closer inspection, the data indicate that although gender neutral subjects actually rated the task as gender neutral, subjects
assessed the task only slightly in the direction of male and female task appropriateness. Thus, despite the statistically significant differences among the three task appropriateness conditions, the task manipulation was not as strong a manipulation as could have been achieved.

Correlational Analysis

Correlational analysis of the post experimental questions also provided some interesting implications for goal setting. There was a significant correlation between the perception of how realistic females perceived their goals and how satisfied they were with their performance ($r = .45, p < .0001$). For example, the more realistic that females perceived their goals, the greater the satisfaction with their performance. The data also indicated a significant correlation between how much females perceived their own performance influenced their goals and how realistic those goals were ($r = .32, p < .0001$). In this case, the more females perceived that their own performance (rather than an opponent or norm) influenced their goals and performance, the more realistic they believed their goals were. Finally, an interesting significant negative correlation was found between the degree of satisfaction with their performance and the objective feedback condition ($r = -.36, p < .0001$). This demonstrated that the more females perceived that they were ahead of either an
opponent or an average, the greater satisfaction with their performance.

The correlational data for the sport orientation questionnaire and its three subscales (competitive, win, and goal orientations) did not produce any significant results. The correlations were assessed with the three dependent measures of goals, performance, and self-confidence.
CHAPTER IV

DISCUSSION

Performance

The finding that females performed better in competition than alone contradicts the results of numerous studies (e.g., Corbin, 1981; Corbin, Landers, Feltz, & Senior, 1983; Corbin & Nix, 1979; Corbin, Stewart, & Blair, 1981; Lenney, 1977; Maccoby & Jacklin, 1974; Stewart & Corbin, 1988). Specifically, results from these studies indicated that females exhibited lower performance in competitive environments than when performing the same task alone. The present study, however, demonstrated that females performed a motor task significantly better in a competitive (same-gender) situation as opposed to those females who performed the same task alone.

Despite social comparison differences in performance, no significant differences were found in self-confidence for females when performing in a competitive situation versus those females who performed the same task alone. Lenney (1977) had predicted that females exhibit lower self-confidence in competitive situations than when performing alone (Corbin, 1981; Corbin & Nix, 1979; Petruzzello & Corbin, 1988; Stewart & Corbin, 1988). The
present study, however, found no significant differences in self-confidence for the social comparison variable. That is, females did not express lower self-confidence when performing in competition when compared to performing the same task alone. Thus, one major implication of the present investigation is that competitive situations may not be as detrimental to female performance and those concomitant levels of self-confidence as predicted by previous findings.

There are several possible explanations for this rather dramatic shift in the results demonstrating that females performed better in competition than alone and that no significant differences in self-confidence were found for females when they performed either in competition or alone. Perhaps, the strongest potential explanation for the contradictory data is found in a small but significant methodological difference between the present study and the previous research. Specifically, researchers (Corbin, 1981; Corbin, Landers, Feltz, & Senior, 1983; Corbin & Nix, 1979; Corbin, Stewart, & Blair, 1981; Petruzzello & Corbin, 1988; Stewart & Corbin, 1988) intentionally limited the practice period for each subject prior to the performance of the specific motor task. For example, Petruzzello and Corbin (1988) reported that 10 to 15 seconds were allowed for subjects to practice the task (pursuit rotor) prior to
the testing phase while Stewart and Corbin (1988) and Corbin, Stewart, and Blair (1981) used a design in which each subject was allowed only a "brief practice trial" prior to the testing phase (stabilometer and pursuit rotor). The rationale for the intentional elimination of practice trials in these designs is best described by Petruzzello and Corbin's (1988) conclusion about the relationship between practice and self-confidence, "it becomes increasingly clear that experience affects self-confidence. The more experience one has of a variety of physical tasks in a variety of physical situations, the greater the possibilities are that self-confidence can be generalized to more situations" (p. 182). Thus, it is apparent that confidence should be enhanced when females are afforded a greater number of practice trials (Petruzzello & Corbin, 1988; Stewart & Corbin, 1988, 1989).

Therefore, restricting the amount of practice, as demonstrated in previous designs, would only favor males in both the performance of the motor skill as well as the estimation of self-confidence. Since males enter the performance phase with more exposure to motor tasks, they exhibit higher levels of self-confidence and should in a large majority of the cases outperform their less experienced female opponents who received little or no opportunity to practice the task prior to the performance
phase. The present design, however, adjusted this important experience factor through an increase in the practice time for each subject by allowing three 60-second practice trials with this novel motor task prior to the experimental phase. Allowing females longer practice periods to fully acquaint themselves with the operation of the task and reduce any uneasiness and/or unfamiliarity with the task introduces a plausible methodological explanation for elevated levels of performance and self-confidence for these females exposed to more practice sessions. This is opposed to previous studies in which females were immediately placed into the testing situation with little or no practice of the task. The present study allowed females to stabilize their performance and self-confidence levels through three additional practice trials rather than immediately assessing female goals, performance, and self-confidence. In essence, the more experience that a female has with a task, the greater the probability for enhanced levels of performance and self-confidence (Corbin, 1981; Corbin & Nix, 1979; Petruzzello & Corbin, 1988; Stewart & Corbin, 1988). Thus, one important methodological change from the previous research, the increase in the amount of practice time allowed each subject, provides a strong explanation for the contradictory results between the present study and the previous findings.
Another possible explanation for the contradictory performance data resides in the socialization process that identifies and instructs in gender role development. Socialization is a life-long process by which an individual acquires behaviors, attitudes, values, expectations, and roles associated with specific behaviors (Lerner & Hultsch, 1984). Thus, gender roles or gender-specific behaviors are learned so that differences in gender-specific behavior between males and females are fashioned through the learning process (Lerner, 1986). In recent years, there has been a significant change in Western culture's socialization of gender roles, a change that has impacted heavily on the development and expectancies of specific behaviors for males and females (Eagly, 1987; Eagly & Stefen, 1984). Due to gender role stereotyping, females have generally expected males to demonstrate better performance in numerous achievement situations, especially motor tasks. At the same time, the socialization process has contributed to females lacking confidence in their own abilities to perform a diversity of tasks (Bandura, 1986). In terms of performing in competitive situations, gender role development has socialized males to be competitive at a very young age while females often suffer from a lack of experience in competitive situations and therefore report higher levels
of self-confidence when working alone rather than in a competitive situation (Eagly, 1987; Hare-Mustin & Maracek, 1988; Lenney, 1977). Females have consistently underestimated their abilities and report lower levels of self-confidence in the performance of a wide range of tasks, both cognitive and motor skills (Corbin, 1981; Corbin & Nix, 1979; Corbin, Stewart, Blair, 1981; House, 1974; Lenney, 1977).

Discussing the impact of socialization to female performance and self-confidence, Stewart and Corbin (1989) concluded that encouraging young girls to perform unfamiliar activities, to participate in those activities that have previously been designated as male appropriate, and to perform in competition, will help them begin to develop more positive self-confidence and higher performance standards in a wide variety of activities. Thus, the socialization process which has discouraged females from performing gender-inappropriate activities, especially in competitive situations is slowly being eroded (Stewart & Corbin, 1989). More and more young females are participating in those activities that had been previously described as "male" appropriate and even more importantly, females have also begun to perform a great deal more in competitive situations, providing themselves with more competitive experience and, in turn,
greater confidence to perform a wide variety of achievement tasks (Petruzzello & Corbin, 1988; Stewart & Corbin, 1989).

Consequently, the awareness of changing gender roles in the socialization process provides another possible explanation for the contradictory data that found females performing better in competition than alone. Specifically, with greater experience in competition, females have started to increase their performance standards and with improved performance comes an increase in self-confidence in competitive situations. Once females begin to expand their range of behaviors and acquire the necessary experience in competitive situations, the data describing reduced performance and self-confidence in competitive situations may no longer be an accurate assessment of female performance and self-confidence in achievement situations (Petruzzello & Corbin, 1988; Stewart & Corbin, 1989).

Eagly (1987) has provided still another potential explanation for the present contradictory data through an attack on McHugh, Kreske, & Frieze's (1986) statement that "gender-related differences that have not been replicated or have not been predicted by or generated in a theoretical model may not be appropriate content for published research" (p. 883). Since most theories of gender
performance differences predict gender differences, null findings (no differences) are not always considered attractive for publication (Eagly, 1987). Thus, it is only through the complete reporting of all gender comparisons (no gender differences as well as gender differences) that any accurate assessment of the existence of any possible "real" gender differences can be made (Eagly, 1987). The findings that have preceded the present study and have been the foundation for the development of the hypotheses have primarily been based upon research that predicts (and has found) distinct differences between males and females in performance and self-confidence in many achievement situations. These difference findings have dominated the research data and may have provided the gender comparison literature with some spurious conclusions. Without reporting those no gender difference findings, then the research literature only presents a distorted analysis of gender differences in achievement situations (Eagly, 1987). This is one important issue in which null findings have a significant impact on the theoretical framework.

Another potential explanation for the contradictory data can be found in methodological differences between the present study and the previous research. Specifically, researchers (Corbin, 1981; Corbin, Landers, Feltz, & Senior, 1983; Corbin & Nix, 1979; Corbin, Stewart, & Blair,
intentionally limited the practice period for each subject prior to the performance of the specific task. Petruzzello and Corbin (1988), for example, reported that 10-15 seconds were allowed for subjects to practice the task (pursuit rotor) prior to the testing phase while Stewart and Corbin (1988) and Corbin, Stewart and Blair (1981) described the situation in which each subject was allowed only a "brief practice trial" prior to the testing phase (stabilometer and pursuit rotor). The rationale for the intentional elimination of practice trials in these designs is best described by Petruzzello and Corbin's (1988) conclusion, "it becomes increasingly clear that experience affects self-confidence. The more experience one has of a variety of physical tasks in a variety of physical situations, the greater the possibilities are that self-confidence can be generalized to more situations" (p. 182). Thus, it is apparent that confidence should be enhanced when females are afforded a greater number of practice trials (Petruzzello & Corbin, 1988; Stewart & Corbin, 1988). Restricting the practice, as demonstrated in these previous designs, would only favor males in both the performance of the motor skill as well as the estimation of self-confidence. Since males enter the performance phase with more exposure to motor tasks, they exhibit greater levels
of self-confidence and should, in a large majority of the cases, outperform their less experienced female opponents. The present design adjusted the experience factor through an increase in the practice time for each subject by allowing three 60-second practice trials with this novel motor task prior to the experimental phase. Allowing females longer practice periods to fully acquaint themselves with the operation of the task and reduce any uneasiness and/or unfamiliarity with the task introduces a plausible methodological explanation for elevated levels of performance and self-confidence for these females exposed to more practice sessions. This is opposed to previous studies in which females were immediately placed into the testing situation without any practice of the task. Thus, the more experience that one has with a task, the greater the probability for enhanced levels of performance and self-confidence (Corbin, 1981; Corbin & Nix, 1979; Petruzzello & Corbin, 1988; Stewart & Corbin, 1988).

Self-Confidence and Feedback

The feedback main effect for self-confidence indicated that feedback raises levels of self-confidence for females as opposed to the situation in which females received no feedback. This result is consistent with the literature in that clear and unambiguous feedback enhances levels of self-confidence for females in achievement situations.
(Corbin, 1981; Corbin & Nix, 1979; Corbin, Stewart, & Blair, 1981; Feather & Simon, 1971, 1973; Hill & Dusek, 1969; House & Perney, 1974; Lenney, 1977; Lenney, Browning, & Mitchell, 1980; McMahon, 1973; Petruzzello & Corbin, 1988; Stewart & Corbin, 1988, 1989). When females received feedback about their own performance, they had significantly higher self-confidence than females who received no feedback about their own performance. Thus, feedback (knowledge of results) has been confirmed as an important mediating factor of self-confidence for females in achievement situations (Lirgg & Feltz, 1989; Stewart & Corbin, 1988).

However, another interesting part of the feedback main effect was that there were significant differences between the objective success (ahead) feedback condition versus the no feedback condition. The implication from these results is that not only does clear and unambiguous feedback about one's own performance elevate female self-confidence, but so does objective success feedback. Informing females about their own performance elevates self-confidence (Corbin, 1981; Corbin & Nix, 1979; Lenney, 1977; Petruzzello & Corbin, 1988; Stewart & Corbin, 1989), but providing feedback that projects the perception of performing "better" than norms (alone condition) or an opponent (competition condition) also elevated female
self-confidence. Thus, the present conclusion is that both types of feedback (own and objective success feedback) are equally effective in elevating female self-confidence in achievement situations.

The final part of the feedback main effect for self-confidence was the comparison between the objective failure (behind) feedback group and the no feedback subjects. The no difference findings between the objective failure (behind) feedback group and no feedback subjects for self-confidence indicate that objective failure feedback may be no worse than no feedback for female self-confidence. More research comparing the objective failure feedback and the no feedback conditions is necessary before the definitive conclusion that any type of quantitative feedback (success and/or failure) significantly impacts female self-confidence in achievement situations. For the present, however, the data support the conclusion that both the own and the objective success (ahead) feedback conditions elevate female self-confidence, but whether objective failure feedback is no worse than no feedback remains a challenging question for future research.

**Task Appropriateness**

In complying with Eagly's (1987) challenge for reporting no difference findings, the present design confirms significant null findings for task appropriateness.
on any of three dependent measures (goals, performance, or self-confidence). Subjects were randomly assigned to one of three task appropriateness conditions (male, female, or neutral) and prior to the performance of the task were given a detailed rationale for the specific task appropriateness to which they had been assigned. After completion of the experiment, the effectiveness of the task appropriateness manipulation was assessed when subjects were asked to respond to the question, "do you think the pursuit rotor is a male appropriate, female appropriate, or a gender neutral task? On the surface, results from this analysis support the effectiveness of the manipulation as there were significant differences between the gender neutral group (M = 5.96) and both the male (M = 5.30) and the female (M = 6.49) appropriate groups in response to this question. Thus, all three groups of subjects perceived the gender appropriateness of the task in the direction of their assigned gender appropriateness manipulation. However, if Corbin (1981), Corbin and Nix (1979), and Lenney (1977) were correct, the male appropriate group should have performed poorer and exhibited less self-confidence than the gender neutral or female appropriate groups, but such was not the case in the present study. Specifically, those females who were randomly assigned to the male appropriate task group (and
perceived the manipulation as such) were apparently not affected by identification of the task as male appropriate.

Even though the data from the present study contradict the previous research findings that females perform poorer and exhibit lower levels of self-confidence when they perceive a task as male appropriate, caution must be maintained with this interpretation because of the small differences among means. A stronger task appropriateness manipulation is needed before any firm conclusions can be reached. That is, the ratings of the task appropriateness by both the male and female task appropriate subjects should be much closer to the male and female designed rating points on the scale (male = 1 and female = 11) before any more definitive statements concerning the effects of the task appropriateness manipulation on female performance and self-confidence can be made.

Goal Setting

Results revealed a social comparison main effect for goals that approached significance (p < .068). Direction of means showed that females were setting higher goals in the competitive situation than in the alone condition. This supports the social comparison main effect for performance that found females performing the pursuit rotor task significantly better in competitive situations than in the alone condition. Thus, just as females performed better in
the competitive situations, they were also setting higher goals in competition than when performing alone. The goal setting/competition relationship is an interesting one that has seen limited research. Locke and Latham (1985) view competition as a form of goal setting and they conclude that "the goal is dynamic rather than static since it changes (typically by going up) due to the performance of other people" (p. 213). Mueller (1983) demonstrated that competition affected performance by raising goal levels. The implication from this initial research is that competition fosters greater goal and performance standards so that, in this present study, females performed better and set higher goals in competition than alone simply due to the nature of being involved in a competitive environment (Locke & Latham, 1985).

The correlational data give some further insights into the goal setting dimension. Specifically, there was a significant positive correlation between realistic goals and satisfaction with overall performance. That is, the more realistic that females perceived their goals were, the greater the satisfaction with their performance. Closely aligned to this result is the research that describes the situation in which only goals that are accepted influence performance and self-confidence (Erez & Zidon, 1984). Under this assumption, then more realistic goals are associated
with greater satisfaction with performance because there is
greater acceptance of realistic goals (Locke & Latham,
1985). Thus, since realistic goals are more accepted, this
predicts greater satisfaction with performance for realistic
goals (Erez & Zidon, 1984).

Results also indicated that feedback impacts on
females' perception of how realistic their goals were, with
females in both the ahead and the own feedback groups
perceiving their goals to be significantly more realistic
than the no feedback group. Through an examination of the
means, the objective failure feedback subjects also
perceived their goals to be more realistic than the no
feedback group, but this difference was not statistically
significant. The implication from these results is that
quantitative feedback influences the perception of goals as
realistic. That is, both feedback about one's own
performance and/or feedback about one's own performance that
describes performing better than a norm or an opponent
enhances the perception of the realistic nature of one's
goals. Without quantitative feedback, goals become less
realistic. Bandura (1986) argues that when feedback is
administered in relation to an opponent or standard, there
is maximum evaluation of one's own performance which, in
turn, enhances motivational levels. Thus, with feedback
our goals become more realistic (Locke & Latham, 1985) and
our effort to achieve these goals is greatly increased (Bandura, 1986).

Future Directions for Research

The possibilities for future research are numerous and quite exciting. First, and perhaps the most important suggestion from this present design is the consideration of a gender comparison with males. Now that a design has studied all three situational variables mediating female self-confidence in achievement situations (Lenney, 1977), the research should be extended to include a direct comparison of these three measures for both females and males. Can we expect the same shift in performance when females compete in opposite-gender competition as was found with same-gender competition? What effect will opposite-gender competition have on female self-confidence? What type of performance measures (goals, performance, and self-confidence) can be expected from males when they perform tasks that have been identified as either gender neutral or female appropriate as opposed to performing tasks labeled as male appropriate? Despite the apparent complexity of such a direct gender comparison, this is the next necessary step in answering some of the questions posed by the conclusions of the present study.

An area of research that has received limited attention, but one that has made an impact on this present
study with some interesting data is the concept of situation criticality feedback. The present data support the notion that female self-confidence was enhanced for those females who not only received clear and unambiguous feedback about their own performance, but received feedback that not only described their own performance, but provided them with the perception that they were performing better than an opponent or a norm. Some further study in this area could begin to identify the feedback parameters for enhancing self-confidence, performance, and goals. For example, is clear and unambiguous feedback that simply reports one's own performance better or poorer than objective success/failure feedback (perception of performing better than norm or an opponent) in raising and/or lowering any and/or all of these measures? Is any type of quantitative feedback better than no feedback in terms of its effect on female goals, performance, and self-confidence? These are some of the questions that future research concerning the quantitative nature of feedback can begin to answer.

One final suggestion for future research relates to the feedback dependency model (Petruzzello & Corbin, 1988; Stewart & Corbin, 1989) that describes the relationship between practice and performance. According to this model, performance and self-confidence are positively affected by
the number of trials that females are allowed prior to the performance of the task. In future designs, a variation of the number of practice trials can be made so that predictions can be generated as to the relationship between practice (feedback) and the dependent measures of goals, performance, and self-confidence. Will increased practice have a positive influence for females in cross-gender competition as it did in same-gender competition? Are only those low in self-confidence positively affected by practice/feedback? Can feedback continue to benefit those receiving a large number of practice trials or is there a ceiling effect for practice? The research with practice (feedback) is a necessary prerequisite for determining whether practice/experience is a critical determinant in elevating levels of female goals, performance, and self-confidence.

Through the manipulation of all three independent variables that mediate female performance and self-confidence (Lenney, 1977) in the same design, the present data indicate that the study of female goals, performance, and self-confidence in achievement situations is a multidimensional and dynamic process. That is, it is a process that is strongly influenced by a series of constantly changing events, including cultural and political events. In essence, the issue is not whether
there are absolute, nonoverlapping gender differences in self-confidence, goals, and performance in numerous achievement situations, but rather the extent of these differences. The biases (both human and methodological) in the research on gender differences and the equivocal nature of the many findings imply that there is, at best, only limited support for gender differences in self-confidence (Eagly, 1987; Lerner, 1986).
APPENDIX A

Sport Orientation Questionnaire--Form B
Sport Orientation Questionnaire--Form B

The following statements describe reactions to sport situations. We want to know how you usually feel about sports and competition. Read each statement and circle the letter that indicates how much you agree or disagree with each statement on the scale: A, B, C, D, or E. There are no right or wrong answers; simply answer as you honestly feel. Do not spend too much time on any one statement. Remember, choose the letter which describes how you usually feel about sports and competition.

<table>
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<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
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1. I am a determined competitor.  
2. Winning is important.  
3. I am a competitive person.  
4. I set goals for myself when I compete.  
5. I try my hardest to win.  
6. Scoring more points than my opponent is very important to me.  
7. I look forward to competing.  
8. I am most competitive when I try to achieve my personal goals.  
9. I enjoy competing against others.  
10. I hate to lose.  
11. I thrive on competition.  
12. I try hardest when I have a specific goal.  
13. My goal is to be the best athlete possible.  

A  B  C  D  E
### Appendix A—Continued

<table>
<thead>
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<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree</th>
<th>Slightly Disagree</th>
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<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
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14. The only time I am satisfied is when I win.  
A B C D E

15. I want to be successful in sports.  
A B C D E

16. Performing to the best of my ability is very important to me.  
A B C D E

17. I work hard to be successful in sports.  
A B C D E

18. Losing upsets me.  
A B C D E

19. The best test of my ability is competing against others.  
A B C D E

20. Reaching personal performance goals is very important to me.  
A B C D E

21. I look forward to the opportunity to test my skills in competition.  
A B C D E

22. I have the most fun when I win.  
A B C D E

23. I perform my best when I am competing against an opponent.  
A B C D E

24. The best way to determine my ability is to set a goal and try to reach it.  
A B C D E

25. I want to be the best every time I compete.  
A B C D E
APPENDIX B

Informed Consent
Informed Consent

The present investigation is concerned with the effects of goal setting and gender differences on the performance of a motor task. As a subject, you will be requested to perform a motor task, the pursuit rotor which requires the tracking of a moving light with a stylus for a trial period of 60 seconds. Before each of the five (5) trials, you will be asked to set your own goal for the number of seconds that you believe that you will be able to achieve during the trial. You will also be asked to complete one pre-experimental questionnaire about your own attitudes and there will also be a post-experiment questionnaire which is designed for your evaluation of the research. I shall be pleased to answer any questions that you may have concerning any aspect of the experiment. The only data that will be reported are the group data so that your individual scores will remain completely anonymous. You may discontinue your participation in this experiment at any time without prejudice. There will be no harmful effects in this experiment either physically, psychologically, or emotionally.
APPENDIX C

Use of Human Subjects Informed Consent
Use of Human Subjects Informed Consent

NAME OF SUBJECT: ________________________________

1. I hereby give consent to ________________________ to perform or supervise the following investigational procedure or treatment:

__________________________________________________________________________

__________________________________________________________________________

I have (seen, heard) a clear explanation and understand the nature and procedure or treatment; possible appropriate alternative procedures that would be advantageous to me (him, her); and the attendant discomforts or risks involved and the possibility of complications which might arise. I have (seen, heard) a clear explanation and understand the benefits to be expected. I understand that the procedure or treatment to be performed is investigational and that I may withdraw my consent at any time without prejudice or penalty. With my understanding of this, having received this information and satisfactory answers to the questions I have asked, I voluntarily consent to the procedure or treatment designated in Paragraph 1 above.

________________________________________
DATE

SIGNED: ________________________ SIGNED: ________________________
WITNESS SUBJECT or PERSON RESPONSIBLE

SIGNED: ________________________ SIGNED: ________________________
WITNESS

Instructions to persons authorized to sign:

If the subject is not competent, the persons responsible shall be the legal appointed guardian or legally authorized representative.

If the subject is a minor under 18 years of age, the person responsible is the mother or father or legally appointed guardian.

If the subject is unable to write his name, the following is legally acceptable:
John H. (His X Mark) Doe and Two (2) witnesses.
APPENDIX D

No and Own Feedback Scoring Form for

Alone and Competition Conditions
No and Own Feedback Scoring Form for
Alone and Competition Conditions

<table>
<thead>
<tr>
<th>SCORING FORM--TRIAL #</th>
<th>SUBJECT</th>
</tr>
</thead>
</table>

(1) How confident are you that you can attain your goal?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>very</td>
<td>not very</td>
<td>much</td>
<td>not much</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

The performance range for this task is 0–60 seconds. Please write the amount of time that you feel confident that you will successfully keep the stylus on target for this NEXT trial. ____________ seconds

How confident are you in this prediction?

<table>
<thead>
<tr>
<th>0%</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>not</td>
<td>very</td>
<td>confident</td>
<td>not very</td>
<td>confident</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Please read each question carefully and circle either YES or NO to the question of whether you believe that you can stay on target for that amount of time. Then right below that line, circle the number that represents the degree of confidence to your response (Yes or No) to that question for this particular trial.

(3) I can stay on target for 10 seconds. Yes  No (Please circle one)

How confident are you in this prediction?

<table>
<thead>
<tr>
<th>0%</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100%</th>
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<tbody>
<tr>
<td>not</td>
<td>very</td>
<td>confident</td>
<td>not very</td>
<td>confident</td>
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</table>

(4) I can stay on target for 20 seconds. Yes  No (Please circle one)

How confident are you in this prediction?

<table>
<thead>
<tr>
<th>0%</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100%</th>
</tr>
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<tbody>
<tr>
<td>not</td>
<td>very</td>
<td>confident</td>
<td>not very</td>
<td>confident</td>
<td></td>
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</tr>
</tbody>
</table>
(5) I can stay on target for 30 seconds. Yes No (Please circle one) How confident are you in this prediction?

0% 10 20 30 40 50 60 70 80 90 100%
not confident very confident

(6) I can stay on target for 40 seconds. Yes No (Please circle one) How confident are you in this prediction?

0% 10 20 30 40 50 60 70 80 90 100%
not confident very confident
APPENDIX E

Situation Criticality Feedback Scoring Form for

Face-to-Face Competition Condition
Situation Criticality Feedback Scoring Form for
Face-to-Face Competition Condition

SCORING FORM--TRIAL # SUBJECT

(1) How confident are you that you can attain your goal?
1  2  3  4  5  6  7  8  9  10  11
very             not very
much            much

(2) How confident are you that you can improve your previous score?
1  2  3  4  5  6  7  8  9  10  11
very             not very
much            much

(3) How confident are you that you can beat your opponent?
1  2  3  4  5  6  7  8  9  10  11
very             not very
much            much

The performance range for this task is 0-60 seconds. Please write the amount of time that you feel confident that you will successfully keep the stylus on target for this NEXT trial. ________________ seconds

How confident are you in this prediction?
0%  10  20  30  40  50  60  70  80  90  100%
not        very
confident    confident
Please read each question carefully and circle either YES or NO to the question of whether you believe that you can stay on target for that amount of time. Then right below that line, circle the number that represents the degree of confidence to your response (Yes or No) to that question for this particular trial.

(4) I can stay on target for 10 seconds.  Yes  No
(Please circle one)
How confident are you in this prediction?
0% 10 20 30 40 50 60 70 80 90 100%
not confident
very confident

(5) I can stay on target for 20 seconds.  Yes  No
(Please circle one)
How confident are you in this prediction?
0% 10 20 30 40 50 60 70 80 90 100%
not confident
very confident

(6) I can stay on target for 30 seconds.  Yes  No
(Please circle one)
How confident are you in this prediction?
0% 10 20 30 40 50 60 70 80 90 100%
not confident
very confident

(7) I can stay on target for 40 seconds.  Yes  No
(Please circle one)
How confident are you in this prediction?
0% 10 20 30 40 50 60 70 80 90 100%
not confident
very confident
APPENDIX F

Situation Criticality Feedback Scoring Form for

Alone Competition Condition
Situation Criticality Feedback Scoring Form for
Alone Competition Condition

SCORING FORM--TRIAL #

(1) How confident are you that you can attain your goal?
1 2 3 4 5 6 7 8 9 10 11
very much not very much

(2) How confident are you that you can improve your previous score?
1 2 3 4 5 6 7 8 9 10 11
very much not very much

(3) How confident are you that you can beat the average performance score?
1 2 3 4 5 6 7 8 9 10 11
very much not very much

The performance range for this task is 0-60 seconds. Please write the amount of time that you feel confident that you will successfully keep the stylus on target for this NEXT trial. ____________ seconds

How confident are you in this prediction?
0% 10 20 30 40 50 60 70 80 90 100%
not very confident very confident
Please read each question carefully and circle either YES or NO to the question of whether you believe that you can stay on target for that amount of time. Then right below that line, circle the number that represents the degree of confidence to your response (Yes or No) to that question for this particular trial.

(4) I can stay on target for 10 seconds. Yes No
(Please circle one)
How confident are you in this prediction?
0% 10 20 30 40 50 60 70 80 90 100%
not very confident
confident

(5) I can stay on target for 20 seconds. Yes No
(Please circle one)
How confident are you in this prediction?
0% 10 20 30 40 50 60 70 80 90 100%
not very confident
confident

(6) I can stay on target for 30 seconds. Yes No
(Please circle one)
How confident are you in this prediction?
0% 10 20 30 40 50 60 70 80 90 100%
not very confident
confident

(7) I can stay on target for 40 seconds. Yes No
(Please circle one)
How confident are you in this prediction?
0% 10 20 30 40 50 60 70 80 90 100%
not very confident
confident
APPENDIX G

No and Own Feedback Condition Post Experimental Questionnaire for Alone and Competition Conditions
Post Experimental Questionnaire

SUBJECT________________________

Please circle the response that best describes your own feelings. Remember there are no right or wrong answers. The responses are based upon your own perceptions of the experiment (CIRCLE ONE NUMBER ONLY FOR EACH RESPONSE).

(1) How much did your own performance influence your goal setting decision?

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<tr>
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(2) How realistic were your own goals?

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<tr>
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<td>not very realistic</td>
<td>very realistic</td>
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(3) How satisfied were you with your overall performance?

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<tbody>
<tr>
<td></td>
<td>not very satisfied</td>
<td>very satisfied</td>
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(4) In terms of gender appropriateness, did you think that the pursuit rotor is a male appropriate, female appropriate, or a gender neutral task?

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<td>male appropriate gender neutral female appropriate</td>
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APPENDIX H

Situation Criticality Feedback Post Experimental

Questionnaire for Face-to-Face Competition Conditions
Post Experimental Questionnaire

SUBJECT________________________

Please circle the response that best describes your own feelings. Remember there are no right or wrong answers. The responses are based upon your own perceptions of the experiment.

(1) How much did your own performance influence your goal setting decision? (circle one number)

1 2 3 4 5 6 7 8 9 10 11
not very much very much

(2) How much did your opponent's performance influence your goal setting? (circle one number)

1 2 3 4 5 6 7 8 9 10 11
not very much very much

(3) How much did your opponent's performance influence your performance? (circle one number)

1 2 3 4 5 6 7 8 9 10 11
not very much very much

(4) How realistic were your own goals?

1 2 3 4 5 6 7 8 9 10 11
not very realistic very realistic

(5) How satisfied were you with your overall performance?

1 2 3 4 5 6 7 8 9 10 11
not very satisfied very satisfied
(6) In terms of gender appropriateness, did you think that the pursuit rotor is a male appropriate, female appropriate, or a gender neutral task?

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</tr>
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<tbody>
<tr>
<td>male appropriate</td>
<td>gender neutral</td>
<td>female appropriate</td>
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(7) In relation to the feedback that you received about your opponent's performance, how did you perceive that feedback in terms of your own performance?

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<tbody>
<tr>
<td>way ahead</td>
<td>slightly ahead</td>
<td>even</td>
<td>slightly behind</td>
<td>way behind</td>
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</tbody>
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APPENDIX I

Situation Criticality Feedback Post Experimental Questionnaire for Alone Competition Condition
Post Experimental Questionnaire

SUBJECT ____________________________

Please circle the response that best describes your own feelings. Remember there are no right or wrong answers. The responses are based upon your own perceptions of the experiment.

(1) How much did your own performance influence your goal setting decision? (circle one number)

1  2  3  4  5  6  7  8  9  10  11
not very much
very much

(2) How much did the average performance score influence your goal setting? (circle one number)

1  2  3  4  5  6  7  8  9  10  11
not very much
very much

(3) How much did the average performance score influence your performance? (circle one number)

1  2  3  4  5  6  7  8  9  10  11
not very much
very much

(4) How realistic were your own goals?

1  2  3  4  5  6  7  8  9  10  11
not very realistic
very realistic

(5) How satisfied were you with your overall performance?

1  2  3  4  5  6  7  8  9  10  11
not very satisfied
very satisfied
(6) In terms of gender appropriateness, did you think that the pursuit rotor is a male appropriate, female appropriate, or a gender neutral task?

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</tr>
</thead>
<tbody>
<tr>
<td>male appropriate</td>
<td>gender neutral</td>
<td>female appropriate</td>
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</tbody>
</table>

(7) In relation to the feedback that you received about the average performance, how did you perceive that feedback in terms of your own performance?

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</thead>
<tbody>
<tr>
<td>way ahead</td>
<td>slightly ahead</td>
<td>even</td>
<td>slightly behind</td>
<td>way ahead</td>
<td>behind</td>
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REFERENCES


