The Relationship Between Goal Orientation, Beliefs About the Causes of Sport Success, and Trait Anxiety Among High School, Intercollegiate, and Recreational Sport Participants

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Goal perspective theory assumes that personal goals serve as organizing principles, influencing the meaning of activities and how individuals respond to achievement experiences (Nicholls, 1989). This study examined the link between an individual’s personal goals, wider views about how sport operates, and trait anxiety level prior to or during competition. This investigation also determined the relation of gender and sport group to goal orientations, beliefs about the causes of success in sport, and multidimensional trait anxiety among sport participants. The sample consisted of 251 male and female high school, intercollegiate, and college-age recreational sport participants who completed the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda & Nicholls, 1992), the 21-item Beliefs About the Causes of Sport Success Questionnaire (BACSSQ; Duda & Nicholls, 1992), and the 21-item Sport Anxiety Scale (SAS; Smith, Smoll, & Schultz, 1990). Canonical correlation analysis revealed that sport participants higher in ego orientation than task orientation were more likely to experience concentration disruption prior to or during performance and believed that taking an illegal advantage, such as blood doping, would lead to success in sport. In general, women were more task oriented than men, and reported worrying and being somatically anxious prior to or during competition. Overall, high school athletes were more ego oriented than intercollegiate athletes. College-age recreational males were more apt than intercollegiate males and high school females to equate effort as the way to success in sport. Further, high school male athletes were more apt than intercollegiate males and all the female athletic groups...
to believe using an illegal advantage, such as performance-enhancing drugs, would lead to success in sport.

Individual differences in motivated behavior and their relation to variations in cognitions and affect among sport participants has become a pervasive area of study, due mainly to its direct application to the applied sport psychologist. Understanding why and how certain processes are related to an athlete’s motivational level and what leads to performance enhancement or impairment is critical in determining how to optimize an individual’s chance(s) of achieving sport success. In fact, cognitions are thought to play an important role in how the individual interprets and subsequently responds to the sport situation (Roberts, 1992). Likewise, affective reactions such as pride, increased anxiety, or enjoyment may also have a tremendous effect on the individual’s motivational level in an achievement-related situation.

One social cognitive approach to understanding achievement motivation is goal perspective theory (Ames, 1992; Dweck & Legget, 1988; Elliot & Dweck, 1988; Nicholls, 1989, 1992). The basic tenets of goal perspective theory are that an individual strives to demonstrate competence and determine subjective success by employing task- or ego-involving criteria (Nicholls, 1989). According to goal perspective theory there are two major goal orientations operating in an achievement-related context: task and ego orientation (Nicholls, 1989).

A person who is more ego oriented than task oriented, evaluates competence from a normatively referenced standpoint and derives feelings of adequacy from the demonstration of superior ability over others (Nicholls, 1989). However, an individual who is higher in task orientation than ego orientation, judges competence from a self-referenced perspective and success is experienced through personal improvement at the task, learning something new or challenging, or developing task mastery (Nicholls, 1989). The hypothesized relationship between goal perspectives and various indices of motivated behavior has been evidenced both in the academic and physical domains (for a review of this literature see Duda, 1992, 1993; Nicholls, 1989).

To assess an individual’s goal orientation in athletics the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda & Nicholls, 1992) was developed. The TEOSQ has consistently demonstrated high levels of reliability and validity, and has confirmed the existence of two orthogonal goal orientations in athletes. Also, both task and ego orientations have been found to exist in a wide range of sport situations and across age groups (Duda, 1992, 1993). Additionally, goal orientations have been linked to the perceived purposes of an activity (Duda, 1989b; White, Duda, & Keller, 1995), participation motivation in youth sport athletes (White & Duda, 1994), the persistence at a physical activity (Duda, 1989a), and an athlete’s attitudes about sportsmanship and aggression (Duda, Olson, & Templin, 1991; Stephens & Bredemeier, 1992).

Within an academic setting, the relationship between goal orientations and beliefs about the causes of success has been examined and thought to represent the individual’s wider “theories” of success (Nicholls, Cobb, Wood, Yackel, & Patashnick, 1990; Nicholls, Patashnick, & Nolen, 1985; Thorkildsen, 1988). Specifically, results indicated that task orientation was associated with the belief that academic attainment resulted from hard work, trying to understand information rather than merely remembering it, and cooperating with one’s classmates.
Ego orientation, however, was associated with the view that high levels of intelligence and superior academic ability led to success in school. The emergence of these goal-belief dimensions is thought to represent what a student deems to be important in school and in his or her perception of how school functions (Nicholls, 1989).

Consistent with the goal-belief dimensions observed in educational settings (Nicholls et al., 1985, 1990; Thorkildsen, 1988), similar relationships have been found in youth tennis players (Newton & Duda, 1993), high school athletes (Duda & Nicholls, 1992), elite athletes (Duda & White, 1992), and disabled athletes (White & Duda, 1993). In general, participants who were ego involved believed that possessing high levels of athletic ability, taking an illegal advantage, and external factors led to success in sport. On the other hand, athletes who were task involved perceived the causes of sport success to stem from collaboration with others, practicing and learning new skills/techniques, and exerting high levels of effort.

However, differences have been found in the task goal-belief dimension. For example, athletes with disabilities believed that the causes of sport success were due to effort and external factors (White & Duda, 1993). This result made conceptual sense, due to the fact that the disabled athletes were wheelchair basketball players and relied upon the quality of the wheelchair, as well as positive interactions with their coaches, for success. Also, task orientation has been coupled with the view that athletic ability leads to success in sport when determining the goal-belief relationship among a group of elite college-aged athletes (Duda & White, 1992). Nevertheless, individual differences in the goal-belief theory of success have not been investigated in the context of college-age recreational sport, nor have the motivational implications been established for these sport participants.

Research examining the individual’s perception of stress suggests that anxiety will be experienced when the perceived demands of the task are greater than the individual’s perceived ability (Martens, 1977). Moreover, a cognitive-affective model of anxiety has been developed that suggests cognitions and affect are distinct aspects of the anxiety process and are reflected in the individual’s reactions to experiencing and expressing anxiety (Davidson & Schwartz, 1976; Deffenbacher, 1977; Liebert & Morris, 1967). Further, a multidimensional approach to understanding anxiety considers the distinction between cognitive and somatic anxiety and their different relationships to performance in academia and work.

Investigations, for instance, have indicated that both social and performance evaluation and preperformance expectancies are highly correlated with increased cognitive anxiety and correspond to decrements in performance (Liebert & Morris, 1967; Morris, Harris, & Rovins, 1981; Morris & Liebert, 1973). Worry, a form of cognitive anxiety, has also been shown to consistently relate to decrements in academic performance (Sarason, 1984). Somatic anxiety, however, tends to produce performance impairment only on tasks requiring precision and accuracy.

Contemporary sport anxiety research also investigates state and trait anxiety from a multidimensional perspective when determining the validity of the cognitive-affective model. In addition, investigators have suggested that the two dimensions of anxiety, namely somatic and cognitive anxiety, influence athletic performance differently (Krane, Joyce, & Rafeld, 1994; Martens, Vealey, &
To account for these differences in the sport participant’s arousal-performance relationship, several theories have been developed. For example, *Catastrophe Theory* (Hardy, 1990; Hardy & Fazey, 1987; Hardy & Parfitt, 1991) proposes that, up to an optimal point, athletic performance is related to increased physiological arousal. Unlike the symmetrical and orderly decline in performance suggested by the *Inverted-U-Hypothesis*, however, Catastrophe Theory predicts that heightened physiological arousal produces a large and dramatic decline in performance. According to Hardy and colleagues (Hardy, 1990; Hardy & Fazey, 1987; Hardy & Parfitt, 1991), cognitive anxiety is responsible for mediating the effects of physiological arousal on performance. *Reversal Theory* (Apter, 1984), on the other hand, has determined that the arousal-performance relationship is a function of physiological arousal and emotional affect. Similar to Catastrophe Theory, Reversal Theory also proposes that the individual’s cognitive interpretation of activation is responsible for the hypothesized emotional-arousal performance relationship. Thus, both theories suggest that the individual’s perception of the situation or cognitions mediate the physiological and emotional aspects of the arousal-performance relationship. Therefore, regardless of the empirical explanation being advanced, anxiety should be considered a multidimensional construct.

To assess sport-specific trait anxiety from a multidimensional perspective, the Sport Anxiety Scale (SAS; Smith, Smoll, & Schultz, 1990) was developed. Specifically, the SAS measures three dimensions of trait anxiety: somatic anxiety, worry, and concentration disruption (with the latter two dimensions being components of cognitive anxiety). A preliminary sport investigation of SAS demonstrated high levels of validity and reliability for all three subscales (Smith et al., 1990). Further, Smith et al.’s (1990) study results found differences between groups of athletes involved at various performance levels on the SAS concentration-disruption subscale.

The relationship between goal perspective theory and trait anxiety has not been extensively studied. Duda (1992, 1993) has proposed that a task-oriented theory of achievement is associated with the following positive affective reactions: intrinsic enjoyment to the activity, feelings of satisfaction from working hard at the task, and a sense of pride in one’s accomplishments, regardless of outcome. However, when outright success is not evidenced, the ego-involved athlete is likely to doubt his or her ability. Consequently, this may lead to the exhibiting of such emotional responses as less enjoyment on tasks in which success is limited, increased feelings of anxiety via the demonstration of the anxiety response (racing heart rate, narrowing of attentional focus, etc.), and anger and disgust at one’s ability when one loses. These relationships have been determined in studies examining dispositional orientations (i.e., goal orientations and sport achievement orientations) and multidimensional state anxiety (Duda, Newton, & Chi, 1990; Swain & Jones, 1992), but not with trait anxiety.

With respect to the interrelationship between dispositional goals, beliefs about the causes of sport success, and trait anxiety, the sport literature is sparse. Nicholls et al. (1985; 1990) have submitted that personal goals and beliefs provide a “wider theory” or understanding of how the individual construes success. Likewise, whether a person experiences heightened levels of physiological arousal or anxiety is dependent upon perceptions of their ability to produce successful or unsuccessful outcomes. Therefore, it is hypothesized that an individual is more
likely to encounter anxiety when he or she perceives sport success to be a function of normative criteria or to be dependent upon others (i.e., ability, external factors). However, when a sport participant believes personal attributes like exerted effort and task mastery to be responsible for sport success, he or she is less likely to experience anxiety and, in particular, cognitive anxiety. Consequently, these hypothesized relationships were tested in this study.

To date, several investigations have examined the relationship between goal orientation, gender, and sport group in the physical domain (Duda, 1988; White & Duda, 1994). Specifically, gender differences using the TEOSQ indicated that men tended to be higher in ego orientation than women, whereas women were consistently more task oriented than men. In relation to sport group, results have demonstrated that intercollegiate athletes are more ego oriented than youth, high school, and college-age recreational sport participants (White & Duda, 1994). Further, the interaction effect for gender and sport group indicated that male high school and college-age recreational athletes were lower in task orientation than their counterpart female athletes (White & Duda, 1994).

Therefore, it would appear that differences in goal orientation are related to an individual’s gender and that personal goals may influence the sport group an individual chooses to participate in. Similar to White and Duda’s (1994) investigation, this study employed a cross-sectional design so that the discriminating validity of the BACSSQ and SAS may also be determined in relation to gender and sport group.

In sum, the purpose of this study was four-fold. First, the relationship between goal orientation, beliefs about the causes of sport success, and trait anxiety among groups of sport participants was examined. Second, the relationship between goal orientation, gender, and sport group was determined. Third, the investigation examined the relationship between beliefs about the causes of sport success, gender, and sport group. Fourth, the study investigated the relationship between trait anxiety, gender, and sport group.

Method

Subjects

A total of 251 male and female sport participants from the northeast region of the United States took part in the study. Specifically, the sample consisted of high school varsity athletes (HS; males n = 29 and females n = 36), NCAA Division I intercollegiate athletes (IS; males n = 49 and females n = 42), and individuals who were involved in organized college-age recreational sport (RS; males n = 60 and females n = 35). Recruitment of the high school and intercollegiate subjects was completed by asking permission from coaches and, when necessary, the athletic director associated with the institution. The college-age recreational athletes, however, were asked in person whether they wanted to participate in the investigation. Not all subjects from each of the solicited teams completed the multisectional questionnaire, as participation was voluntary. The mean ages in years for the sport groups were, HS ($M = 15.88 \pm 1.40$), IS ($M = 20.10 \pm 1.43$), and RS ($M = 20.56 \pm 1.14$). The subjects participated in activities such as football, soccer, basketball, ice hockey, baseball, softball, and track.
**Procedures**

Prior to data collection, each subject completed an informed consent. The multi-sectional questionnaire was administered to subjects 40 minutes prior to practice for the high school and intercollegiate athletes, and before scheduled facility time with the college-age recreational sport participants. The subjects were told to ask for help if confused concerning either instructions or particular item clarity. No problems were encountered in the completing of any of the questionnaires, and responses were kept anonymous.

**Instruments**

A three-part inventory was completed by all subjects. The first part of the inventory consisted of questions on the following: age, gender, sport type, and level of participation (i.e., high school varsity team, intercollegiate team, or college-age recreational team); then the TEOSQ (Duda & Nicholls, 1992) was presented. The TEOSQ is a 13-item inventory that asks subjects to think about when they felt most successful in sport and to indicate their agreement by employing either ego-oriented (e.g., “I’m the best”) or task-oriented (e.g., “I work really hard”) criteria for subjective success. All responses were recorded on a 5-point Likert-type scale (i.e., strongly disagree = 1 and strongly agree = 5). A mean score was determined for each TEOSQ subscale (i.e., sum of item responses/number of items), with a low score of 1 and a high score of 5.

The second part of the inventory was the 21-item Beliefs About the Causes of Sport Success Questionnaire (BACSSQ; Duda & Nicholls, 1992). The BACSSQ has been adapted for sport from the original instrument developed in education by Duda and her colleagues (Duda & Nicholls, 1992; Duda & White, 1992; Newton & Duda, 1993; White & Duda, 1993) and has demonstrated both reliability and validity in the physical domain. Subjects were asked to respond to the stem, “What do you think is most likely to help athletes do well or succeed in sport?” The BACSSQ items reflected such beliefs as “Athletes succeed if they work really hard,” “Athletes succeed if they have the right equipment,” “Athletes succeed if they use performance-enhancing drugs,” and “Athletes succeed if they are born natural athletes.” Answers were indicated on a 5-point Likert-type scale (strongly disagree = 1 and strongly agree = 5). However, the 3 items that comprised the Illegal Advantage subscale were reversed scored so that strongly disagree = 5 and strongly agree = 1.

The final part of the inventory was the 21-item SAS (Smith, Smoll, & Schultz, 1990). The SAS was used to measure competitive trait anxiety in all participants. Subjects responded to the stem, “How do you feel prior to or during competition?” The inventory measured somatic anxiety (e.g., “My body feels tense”) and two types of cognitive anxiety: worry (e.g., “I have self-doubts”) and concentration disruption (e.g., “My mind wanders during sport competition”). Responses were recorded on a 4-point Likert-type scale with not at all = 1 and very much so = 4.

**Results**

The internal reliability of the three questionnaires administered in this study was determined by calculating Cronbach’s Coefficient Alpha (Cronbach, 1951). Both
the seven-item task-orientation and six-item ego-orientation subscales demonstrated strong internal consistency (alpha = .92 and .86, respectively). Overall, subjects in the study were higher in task orientation than ego orientation. The mean for the task-orientation subscale was 4.10 ± .81 and for the ego-orientation subscale, 3.21 ± .87. For the three SAS subscales, the alpha coefficients included \textit{somatic anxiety} = .90, \textit{worry} = .84, and \textit{concentration disruption} = .71. In general, the subjects reported experiencing trait anxiety primarily in the form of worry (mean = 2.09 ± .59), then somatic anxiety (mean = 1.90 ± .60), and lastly concentration disruption (mean = 1.55 ± .46). In regard to the four BACSSQ subscales, three of the subscales—\textit{effort} (alpha = .83), \textit{external factors} (alpha = .78), and \textit{illegal advantage} (alpha = .88)—were found to be internally consistent. However, the \textit{ability} subscale demonstrated unacceptable internal consistency (alpha = .53) and was deleted from all subsequent analyses.

\textbf{Goal Orientation, Beliefs About the Causes of Sport Success, and Trait Anxiety}

The multivariate relationship between goal orientation, beliefs about the causes of sport success, and trait anxiety was determined by a canonical correlation. The canonical loadings reflected those variables that contributed the most to the multivariate relationship. Loadings greater than .40 were considered significant and meaningful (Pedhazur, 1982). Results of the canonical analysis are presented in Table 1. Overall, one significant canonical function emerged (Wilks’s lambda = .715; canonical correlation, .53).

Examination of the canonical loadings for Function One, $F(8, 238) = 81.00$, $p < .001$, indicated that participants who were higher in ego orientation than task orientation, believed that taking an illegal advantage (e.g., performance-enhancing drugs or blood doping) led to success in sport and reported experiencing high levels of cognitive anxiety in the form of worry prior to or during competition.

<table>
<thead>
<tr>
<th>Table 1 Standardized Canonical Coefficient</th>
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<tbody>
<tr>
<td>Function 1</td>
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<tr>
<td>Goal orientation</td>
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<tr>
<td>Task orientation</td>
</tr>
<tr>
<td>Ego orientation</td>
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<tr>
<td>Beliefs about the causes of sport success</td>
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<tr>
<td>Effort</td>
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<tr>
<td>External factors</td>
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<tr>
<td>Illegal advantage</td>
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<td>Trait anxiety</td>
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<tr>
<td>Somatic anxiety</td>
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<tr>
<td>Worry</td>
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<tr>
<td>Concentration disruption</td>
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</table>
Goal Orientation, Gender, and Sport Group

A gender by sport group (2 x 3) MANOVA was performed with the task- and ego-orientation subscales as the dependent variables. The interaction was nonsignificant, Wilk's lambda = .98, F(4, 486) = 1.22, p > .05, however, main effects for gender, Wilk's lambda = .92, F(2, 243) = 10.35, p < .001, and sport group, Wilk's lambda = .93, F(4, 488) = 4.44, p < .001 emerged. Follow-up univariate F tests on the gender main effect, F(1, 244) = 17.65, p < .001, indicated that women were higher in task orientation than men. Univariate F tests on the sport group main effect, F(2, 244) = 6.70, p < .001, and post hoc analyses (Scheffe) determined that high school athletes scored higher in ego orientation than the intercollegiate athletes. Means and standard deviations for gender and sport group on the two TEOSQ subscales are presented in Table 2.

Beliefs About the Causes of Sport Success, Gender, and Sport Group

The relationship between the independent variables (gender and sport group) and the three BACSSQ subscales as the dependent variables was calculated using a 2 x 3 MANOVA. A significant interaction emerged, Wilk's lambda = .93, F(6, 482) = 2.87, p < .01. Follow-up univariate F tests and post hoc (Scheffe) analyses indicated that the six sport groups involved in the study differed on the BACSSQ subscales effort, F(2, 244) = 6.41, p < .01, and illegal advantage, F(2, 244) = 4.50, p < .05. Compared to intercollegiate males and high school females, the college-age recreational males reported that effort led to success in sport. Further, high school male sport participants, in comparison to intercollegiate males and all the female athletic groups, believed that using an illegal advantage, such as performance-enhancing drugs, led to success in sport. Presented in Table 3 are the means and standard deviations for the three BACSSQ subscales for each of the six groups involved in the study.

Table 2 Task- and Ego-Orientation Subscales

<table>
<thead>
<tr>
<th>Gender</th>
<th>Task orientation M</th>
<th>SD</th>
<th>Ego orientation M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>4.34*</td>
<td>.63</td>
<td>3.15</td>
<td>.88</td>
</tr>
<tr>
<td>Males</td>
<td>3.89*</td>
<td>.93</td>
<td>3.31</td>
<td>.87</td>
</tr>
<tr>
<td>Sport group</td>
<td>High school 4.08</td>
<td>.37</td>
<td>3.48*</td>
<td>.92</td>
</tr>
<tr>
<td>Intercollegiate</td>
<td>4.26</td>
<td>.70</td>
<td>3.00*</td>
<td>.76</td>
</tr>
<tr>
<td>College-age recreational</td>
<td>4.17</td>
<td>.92</td>
<td>3.13</td>
<td>.91</td>
</tr>
</tbody>
</table>

Note. Similar superscripts indicate significant (p > .05) goal orientation differences.
Table 3  Beliefs About the Causes of Sport Success Subscales

<table>
<thead>
<tr>
<th></th>
<th>Effort</th>
<th></th>
<th>External Factors</th>
<th></th>
<th>Illegal Advantage</th>
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<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
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<tr>
<td>Females by sport group</td>
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<td></td>
</tr>
<tr>
<td>High school</td>
<td></td>
<td>1.53a</td>
<td>.34</td>
<td>3.42</td>
<td>.66</td>
<td>4.80b</td>
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<td>.59</td>
<td>3.29</td>
<td>.73</td>
<td>4.32b</td>
</tr>
<tr>
<td>College-age recreational</td>
<td></td>
<td>1.83</td>
<td>.46</td>
<td>3.00</td>
<td>.69</td>
<td>4.42b</td>
</tr>
<tr>
<td>Males by sport group</td>
<td></td>
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<tr>
<td>High school</td>
<td></td>
<td>1.79</td>
<td>.47</td>
<td>3.20</td>
<td>.71</td>
<td>3.35b</td>
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<tr>
<td>Intercollegiate</td>
<td></td>
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<td>.39</td>
<td>3.24</td>
<td>.75</td>
<td>4.00p</td>
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<td></td>
<td>2.10a</td>
<td>.76</td>
<td>3.29</td>
<td>.73</td>
<td>3.89</td>
</tr>
</tbody>
</table>

Note. The illegal advantage subscale was reversed scored so that strongly disagree = 5 and strongly agree = 1. Similar superscripts indicate significant (p > .05) beliefs about what causes success in sport differences.

Table 4  Three Sport Anxiety Scale Subscales

<table>
<thead>
<tr>
<th></th>
<th>Somatic Anxiety</th>
<th></th>
<th>Worry</th>
<th></th>
<th>Concentration Disruption</th>
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<tr>
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<tr>
<td>Females</td>
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<td>Males</td>
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<tr>
<td>High school</td>
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<td>Intercollegiate</td>
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<td>1.83</td>
<td>.61</td>
<td>2.10</td>
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<td>1.69</td>
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</table>

Note. Similar superscripts indicate significant (p > .05) trait anxiety differences.

Trait Anxiety, Gender, and Sport Group

Differences between gender and sport group for trait anxiety using the three SAS subscales as dependent variables were determined by a 2 × 3 MANOVA. A nonsignificant interaction was discerned, Wilks’s lambda = .96, F(6, 486) = 1.43, p > .05; yet a significant main effect for gender, Wilks’s lambda = .88, F(3, 243) = 11.34, p < .001, emerged. Follow-up univariate F tests revealed that both somatic anxiety, F(1, 245) = 17.10, p < .001, and worry, F(1, 245) = 30.20, p < .001, differed as functions of gender. Specifically, females, more than males,
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reported higher levels of somatic anxiety and cognitive worry prior to or during competition. The means and standard deviations for three SAS subscales by gender and sport group are presented in Table 4.

Discussion

The present study used a social-cognitive framework to assess individual differences in cognitions and affect among groups of sport participants. In general, the subjects in the study scored above the midpoint for both task and ego orientation; therefore, an extreme-groups design was not utilized. In addition, it was assumed that beliefs about the causes of success in sport and trait anxiety prior to or during competition would conceptually relate to an individual’s goal orientation. Overall, this study indicated that individuals higher in ego orientation than task orientation were more likely to experience cognitive anxiety in the form of worry prior to or during performance. These individuals also reported that taking an illegal advantage (e.g., blood doping) led to success in sport. Further, the study results found that women were more task oriented than men and reported being more worried and somatically anxious prior to or during competition.

The high school athletes in this investigation tended to be more ego oriented than the intercollegiate athletes. Furthermore, compared to intercollegiate male and high school female athletes, college-age recreational males believed that exerting effort was essential for achieving sport success. Finally, high school male athletes, more than intercollegiate males and all the female groups, reported that athletic success might be achieved by taking an illegal advantage such as performance-enhancing drugs.

Aligned with previous sport research examining goals and beliefs about the causes of success among athletes, an ego-oriented theory of achievement was identified in this study (Duda & White, 1992; Newton & Duda, 1993; White & Duda, 1993). Specifically, individuals who scored higher on the ego-orientation subscale than on the task-orientation subscale of the TEOSQ believed success in sport could be achieved through the utilization of an illegal advantage. More importantly, this study demonstrated that the ego-belief theory of sport was related to high levels of cognitive worry prior to or during competition. Interestingly, it had been proposed by Newton and Duda (1993), that an ego-belief theory of sport may lead to feelings of less enjoyment, high anxiety, and less effort and persistence at a task.

Consequently, this study supported the notion that high levels of cognitive anxiety are associated with an ego-belief theory of achievement motivation in the sport domain. Moreover, Duda (1992, 1993) has suggested that when an ego orientation prevails, athletes are more prone to performance impairment and the doubting of their athletic competence. Both Ames (1992) and Nichollls (1989) submitted that an ego-belief theory of achievement would produce motivational difficulties and maladaptive achievement patterns for an individual. Hence, this study has found initial evidence that suggests that an ego-oriented theory of achievement may be linked to increased anxiety and, in this case, cognitive anxiety in the form of worry.

An individual establishes cognitive maturity when he or she understands the difference between ability and exerted effort and determines a proneness to be
higher in task or ego orientation (Nicholls, 1989). This process of differentiation is dependent upon many factors. For example, socialization with different environmental contexts plays a critical role in reinforcing both superior ability (ego orientation) and personal mastery (task orientation). When high levels of ability and winning are perceived to be most salient it is predicted that an ego orientation will be fostered (Duda, 1992, 1993). When the emphasis is on improvement and personal mastery, however, task orientation is more likely to be promoted.

Duda (1992, 1993) argues that by ascribing to an ego-oriented goal perspective the athlete may be at risk for suffering long-term motivational problems. Although the subjects in this study scored above the midpoint for both task and ego orientation, the high school athletes differed from all other groups on ego orientation. As a result, this group of sport participants may be in danger of experiencing motivational problems in the athletic context. This would be particularly true of those athletes who experienced repeated failure and who doubted their actual competence.

The gender difference in goal orientation in this study was aligned with previous work (Duda, 1988; Duda & White, 1992; White & Duda, 1994). Specifically, women scored higher on the task-orientation subscale of the TEOSQ than they did on the ego-orientation subscale. In all three different sport groups, personal improvement and task mastery appeared more salient to women than to men. The adoption of a task orientation in an achievement-related context has been linked to more adaptive achievement patterns (Ames, 1992). According to Duda (1992, 1993), the development of an adaptive achievement pattern is a function of goal perspectives that represents an individual’s intrinsic interest in the activity (specifically, task orientation) and the person’s perceptions concerning the causes of achievement (namely, self-referenced). Because these gender differences in goal orientation have been repeatedly identified, future investigations need to determine the socialization mechanisms that produce differences in men and women.

Individual differences in beliefs about the causes of success in sport were examined in regard to gender and sport group, and a significant interaction was found for the six male and female groups. This study determined that male college-age recreational athletes, when compared to intercollegiate male and high school female athletes, placed more emphasis upon effort as a means for achieving sport success. Specifically, the male college-age recreational sport participants reported using a mastery-based perspective in which motivation to improve and train hard were important beliefs about what led to sport success. Nicholls (1989) suggested that the adoption of a belief theory emphasizing personal effort would foster enhanced motivation and produce the desirable achievement patterns needed to make physical activity participation probable over the long term. Future research in the area of beliefs and sport success is needed that employs a developmental approach, so that the link between sport attrition and retention can be examined in relation to an individual’s personal beliefs.

This investigation also found that high school male athletes, more than male intercollegiate and all the female participants in the study, perceived the causes of sport success to stem from using tactics or behaviors that give the individual an unfair advantage. It appeared that younger aged male athletes were more likely to endorse the view that using extreme means (e.g., illegal and potentially harmful tactics) may lead to success in sport. These results are similar
to those found in a study of elite adolescent tennis players who also perceived deceptive beliefs and external factors to be major contributors to success in sport (Newton & Duda, 1993). Duda and Nicholls (1992) proposed that those individuals, in employing such an undesirable belief structure, would suffer motivational ramifications such as frustration, increased anxiety, and subsequent failure in the physical and academic domain.

Finally, this study determined differences in multidimensional trait anxiety for men and women and across three varying types of sport groups. No interaction for gender and sport group was found, but gender differences were revealed. Results indicated that women, more than men, were higher in both trait somatic anxiety and cognitive worry. Many of the sport investigations examining multidimensional anxiety have studied state anxiety and not trait anxiety. Therefore, this study will use some inferences from the state anxiety literature to explain its findings for gender.

In general, elevated levels of somatic state anxiety prior to or during competition are quite common among athletes, regardless of gender (Jones, Swain, & Cale, 1991). Nonetheless, equivocal perspectives have been proposed in regard to somatic anxiety’s effect on performance. Some researchers believe that increased levels of physiological activation dissipate as the person becomes more immersed in the “heat” of competition (Burton, 1988; Gould, Petlichkoff, Simons, & Vevera, 1987). Others argue, however, that heightened somatic anxiety produces large and dramatic decrements in performance (Hardy, 1990; Hardy & Fazey, 1987; Hardy & Parfitt, 1991; Krane et al., 1994; Swain et al., 1990). Consequently, feelings of sickness to the stomach, sweating, and a slightly racing heart may be extremely disruptive to the demonstration of athletic competence. Therefore, athletes need to be taught how to differentiate between levels of physiological arousal associated with psychological readiness and those that are debilitating to performance. This would be especially critical to the female athletes in this study who reported heightened levels of somatic trait anxiety prior to or during competition.

The more troubling finding in this study was that women reported high levels of cognitive trait anxiety in the form of worry. Although assessing state anxiety, Jones et al. (1991) found that women were also more likely than men to experience elevated cognitive anxiety as competition became more imminent. Catastrophe Theory proposes that under conditions of higher cognitive anxiety, large and dramatic disruptions in performance are likely (Hardy, 1990; Hardy & Fazey, 1987; Hardy & Parfitt, 1991). These changes in performance are predicted to occur as a result of heightened physiological arousal mediated by the individual’s cognitive anxiety level.

It may be hypothesized that increased levels of cognitive trait anxiety would also be experienced by the female athlete in other performance-related situations. Therefore, as well as feeling cognitively anxious prior to or during the actual athletic contest, these individuals may also be practicing less effectively, not sleeping properly, experiencing attention loss, and wasting energy through increased metabolic rates. All these factors would contribute to a greater probability in performance disruption that may lead to higher levels of cognitive anxiety. And so the cycle continues. In order to establish whether female athletes, more than male athletes, are at greater risk for experiencing cognitive trait anxiety in
competition and other aspects/areas of the sport situation, further replication of this result is needed.

**References**


achievement motivation. Paper presented at the meeting of the North American Society for the Psychology of Sport and Physical Activity, Pittsburgh, PA.


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**Note**

'The data collection and an advanced project were completed by the second author to fulfill the requirements of a Master of Science Degree in Sport Studies at the University of New Hampshire under the direction of the first author.

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