The Relationships Among Competitive Orientation, Sport-Confidence, Self-Efficacy, Anxiety, and Performance

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Abstract:

We examined the relationships among trait and state psychological variables and performance in male high school distance runners using the Sport Orientation Questionnaire (SOQ; Gill & Deeter, 1988), the Competitive Orientation Inventory (COI; Vealey, 1986), the Trait Sport-Confidence Inventory (TSCI; Vealey, 1986), the State Sport-Confidence Inventory (SSCI; Vealey, 1986), the Competitive State Anxiety Inventory-2 (CSAI-2; Martens, Burton, Vealey, Bump, & Smith, 1990), and separate self-efficacy scales for performance (time) and outcome (place). As hypothesized, trait sport-confidence predicted state sport-confidence and outcome self-efficacy. However, competitive orientation did not contribute to the prediction of state measures. State sport-confidence and self-efficacy predicted performance, as hypothesized. Surprisingly, outcome self-efficacy was a stronger predictor than performance self-efficacy, which did not contribute to the prediction of performance time or place. The runners' youth and lack of competitive track experience may have prevented them from forming accurate performance self-efficacy judgments. In contrast, the familiar and small competitive field may have allowed these athletes to form accurate outcome self-efficacy judgments.

Article:

Anecdotal evidence and the media have suggested that many athletes are preoccupied with the outcome of competitive events. Although a desire to win can, at times, direct behavior, it can also have negative consequences (Orlick, 1986). In particular, low self-confidence, high anxiety, and, ultimately, poor performances are often noted in athletes who hold unrealistic outcome goals. In contrast, athletes who are more concerned with performing well in their sport appear more self-confident and less anxious and may perform closer to their potential (Martens, 1987). Although theoretical work and experiential knowledge have suggested these trends, few empirical studies have been done (Vealey, 1986, 1988). The purpose of this study was to investigate the relationships of trait sport-confidence and competitive orientation to state measures of sport-confidence, self-efficacy, and anxiety and the relationships of these state measures to performance.

Sport psychologists have noted two distinct competitive orientations in sport. An outcome orientation is a desire to win or place high relative to other competitors. A performance orientation indicates a goal of performing well, relative to one's own ability (Gill & Deeter, 1988; Vealey, 1986).

Burton (1989) cited two problems with outcome goals. First, outcome goals are uncontrollable; for example, athletes cannot control the ability of other athletes or weather conditions. Second, an outcome orientation limits the flexibility of goal setting. If an athlete is sick or injured, a previously attainable goal may now be unattainable. An outcome-oriented athlete who lacks flexibility may continue to strive toward an unrealistic goal. In contrast, an athlete with performance goals or internal standards of success can adjust them as the situation changes. For example, an injury may require lowering a time goal in a running race.

Outcome goals can reduce motivation and effort in two ways. If competitors are substantially less skilled, athletes may not try their best but may try just hard enough to win. In contrast, when the competition is superior, athletes know that winning is unlikely, and they may not put forth their best efforts. An athlete holding a realistic performance goal, on the other hand, can choose an appropriately challenging standard. In short,

performance goals provide standards that can enhance sport-confidence whereas outcome goals can undermine sport-confidence.

Applied sport psychologists working directly with athletes have recognized the importance of performance goals for other reasons. A major characteristic of an effective behavioral coaching program involves setting performance goals (Martin & Hrycaiko, 1983). Taylor (1988) cited misperceptions of poor performance, based on outcome goals, as a likely precursor of slumps. Although achieving performance goals can lead to peak performance (Gould, 1986), failure to meet outcome and performance goals may contribute to children's sport cessation (Klint & Weiss, 1987). Thus, if performance goals can enhance performance levels, sport cessation may be prevented. In snmmary, a performance orientation implies having performance goals that influence performance through enhancing state sport-confidence.

Just as a competitive orientation can influence state sport-confidence, Vealey (1986) has indicated that an individual's disposition toward being self-confident in sport, or trait sport-confidence, also influences state sport-confidence. As a result, both trait sport-confidence and competitive orientations may influence state sport-confidence. For example, Vealey (1988) found that athletes high in trait sport-confidence who held a performance orientation were also high in state sport- confidence. Athletes who have high state sport-confidence levels do so because these immediate, precompetitive feelings are based on controllable, flexible, and realistic performance goals that a performance orientation provides. Competitive orientations and trait sport-confidence may also influence self-efficacy, which is a specific form of state sport-confidence, but research examining the relationship between competitive orientations and self-efficacy is lacking.

Anxiety has frequently been cited as having an important role in athletics. Martens, Burton, Vealey, Bump, and Smith (1990) and Gould, Petlichkoff, and Weinberg (1984) suggested that cognitive anxiety (worry) is negatively related to self-confidence. Thus, trait sport-confidence and competitive orientations influence state sport-confidence and self-efficacy; cognitive anxiety is inversely related to both state sport-confidence and self-efficacy. Finally, research and anecdotal evidence have suggested that both self-confidence and anxiety influence performance. Self-confidence enhances performance whereas cognitive anxiety impairs it (Feltz, 1988; Martens et al., 1990).

Thus, we have suggested a two-part model examining trait and state psychological variables and performance. More specifically, the trait variables of competitive orientation and sport-confidence will influence the state variables of sport-confidence, self-efficacy, and cognitive anxiety. Then, state sport- confidence, cognitive anxiety, and self-efficacy will influence performance. Unfortunately, few studies have considered these psychological variables together. Because competitive track allows for achievement of both performance and outcome goals that are easily measured by an athlete's finishing time and place, we examined the two-stage model with male high school distance runners. We hypothesized that performance orientation and trait sport-confidence are positively related to self-efficacy and to state sport-confidence and negatively related to cognitive state anxiety. In addition, we hypothesized that state sport-confidence and self-efficacy are positively related to performance whereas cognitive state anxiety is negatively related to performance.

Method

Subjects

The subjects were 73 male middle- and long-distance runners on local high school track teams. The athletes ranged in age from 14 to 18 years *(M=16* years) and came from 13 different high schools.

Measures

Competitive Orientation Measures. Like Vealey (1986), we used the Competitive Orientation Inventory (COI; Vealey, 1986), which placed outcome and performance orientations at opposite ends of one continuum. Respondents weigh varied performance and outcome combinations, and the resulting COI total performance orientation score ranges from 0 to 1. Vealey calculated test-retest reliability at .69 for performance orientation and .67 for outcome orientation and demonstrated concurrent validity for the COI.

We also used the Sport Orientation Questionnaire (SOQ) developed by Gill and Deeter (1988), which is a multidimensional measure of sport-achievement orientation. Three subscales measure win orientation (outcome), goal orientation (performance), and competitiveness. Gill and Deeter reported test-retest reliability from .73 to .89 and internal consistency coefficients from .79 to .95 for the three subscales. Construct validity has also been demonstrated as the SOQ differentiates students in competitive activities from those in noncompetitive activities (Gill & Deeter, 1988). In addition, concurrent validity was established with the Work and Family Orientation Questionnaire (Helmreick & Spence, 1978).

We used the SOQ in addition to the COI because the SOQ allows athletes to hold both win and goal orientations independently whereas the COI forces athletes to choose between an outcome and a performance orientation. Thus, both measures were used to determine if their conceptualizations influenced the proposed relationships in different ways.

Confidence Measures. The Trait Sport-Confidence Inventory (TSCI) developed by Vealey (1986) assesses how confident athletes usually feel in a sport achievement situation. Its reliability (test-retest) has been reported at .86 for 14-18-year-old athletes.

The State Sport-Confidence Inventory (SSCI; Vealey, 1986) measures an athlete's sport-confidence just prior to an event and indicates precompetitive feelings of confidence for that specific event. Internal consistency has been reported at .95 and concurrent validity has been established for 14-18-year-old athletes.

State Anxiety Measure. The Competitive State Anxiety Inventory-2 (CSAI-2; Martens et al., 1990) measures precompetitive levels of state anxiety. The three subscales represent cognitive anxiety (worry), somatic anxiety (physiological arousal), and confidence. We used the cognitive-anxiety subscale, and Martens et al. (1990) demonstrated internal reliability (.92) and validity for children, ages 9 to 18.

Self-Efficacy Measure. Bandura's (1977) concept of self-efficacy is unique in that self-efficacy measures vary with the specific behaviors in question. In this study, separate self-efficacy measures determined how efficacious runners felt about achieving a performance goal and achieving an outcome goal. Following Bandura's recommendations, a hierarchy of questions that reflected increasing degrees of difficulty measured the level of a person's outcome and performance self-efficacy. One outcome self-efficacy question asked, "How certain are you of winning the race?" Similar questions asked how certain subjects were of placing in the top 2, 3, 5, 9, and 12.

A performance self-efficacy question asked, "How certain are you of running 15 seconds faster than your personal best time?" Similar questions asked how certain subjects were of running 3 and 6 seconds faster than their personal best times and how certain they were of running within 3, 6, and 15 seconds of their best times. The questionnaire was designed for athletes running the 1/2-, 1-, and 2-mile races and for varying performance times and competitive-field sizes. The respondents indicated their degree of confidence or certainty of achieving each level by choosing a percentage from *no confidence* (0) to *absolute confidence* (100). Finally, self-efficacy scores were determined by adding strength scores (0 to 100) and dividing by the number of levels (questions) for the separate outcome self-efficacy and performance self-efficacy scores.

Performance Measures. An athlete's finishing time and place from the first race completed represented two measures of performance. Each athlete's finishing time was standardized across events on a 0- to 1000-point scale (Gardner & Purdy, 1988).

Procedures

J. Martin visited coaches from the various high schools to explain the nature of the study, and in a second visit he explained the study to the athletes and distributed materials containing a letter describing the study and informed-consent forms. At a third meeting, 2 to 7 days before a midseason dual track meet, athletes completed

the TSCI, the SOQ, the COI, and an informational questionnaire requesting biographical information such as age, sex, running experience, event, and personal best times. At a fourth meeting, immediately (25-35 minutes) before the start of the race, the athletes completed the SSCI, the self-efficacy questionnaire, and the CSAI-2 to assess precompetitive sport-confidence, self-efficacy, and cognitive state anxiety. The testing took place at eight different dual track meets.

Results

We analyzed the data by first looking at descriptive information. Next, we examined Pearson correlations between each trait and state variable and between each state and performance measure. Finally, for each prediction we ran separate stepwise multiple-regression analyses on the criterion variable. Stepwise procedures were used because no a priori order was warranted and because stepwise analyses determine the best predictor among similar variables that share variance.

This sample of athletes was young *(M=16* years) and inexperienced in competitive track racing (M=2.3 years). In comparison to Gill and Deeter's (1988) and Vealey's (1986) norms, these athletes were more performance than outcome oriented, and they were competitive. Similar to Vealey's sample, they were high in trait and state sport-confidence. They were moderately anxious and expected to place high and run faster than their previous personal bests (see Table 1 for descriptive information).

Pearson correlations were calculated to examine hypothesized relationships between trait and state constructs. Specifically, it was hypothesized that competitive orientations and trait sport-confidence would predict the criterion variables of state sport-confidence, self-efficacy, and cognitive state anxiety. Table 2 shows significant correlations supporting these trait and state relationships. The stepwise multiple-regression analysis revealed that trait sport-confidence (TSCI), Multiple R=.64; $F(1,70)=49.5$, $p<.001$, was a significant and powerful predictor that accounted for 41 % of the variance in state sport-confidence (SSCI). None of the competitive-orientation measures added significantly to the regression equation.

Table 1

Descriptive Data

Measure	*M*	*SD*
Age	16.0	2.0
Years of train.	2.3	1.5
COI	.604	.258
SOQ		
Comp.	55.77	7.34
Win	21.30	4.78
Goal	27.53	2.73
TSCI	80.71	15.36
SSCI	79.85	19.06
Self-eff.		
Outcome	59.90	25.49
Perf.	59.60	21.60
CSAI-2		
Cog. anx.	21.67	4.92
Finish		
Place	6.0	3.9
Time	506.0	119.6

Table 2

Correlations Between the Trait and State Measures

	COI			SOQ subscales		
	TSCI	Perf.	Outcome	Win	Goal	Comp.
SSCI	+.64***	−.01	+.07	+.28**	+.13	+.34**
Self-eff. perf.	+.06	+.11	−.14	−.01	+.24*	+.14
Self-eff. outcome	+.43***	+.06	−.10	+.30**	+.11	+.32**
CSAI-2						
Cog. anx.	−.15	−.10	+.00	+.05	−.01	−.15

*$p < .05$; **$p < .01$; ***$p < .001$.

Similar correlational results were evident when examining self-efficacy expectations for outcome. The stepwise multiple-regression analysis indicated that the TSCI was the only significant predictor, Multiple *R*= .43; F(1,71) =16.26, p<.05, of outcome self-efficacy as it accounted for 19% of the variance.

SOQ goal orientation was the only trait variable significantly correlated with performance self-efficacy. In addition, a stepwise multiple-regression analysis indicated that SOQ goal orientation was a significant, Multiple *R*=.24; F(1,71)=4.53, p<.05, but weak predictor of performance self-efficacy as it accounted for 6% of the variance. None of the trait measures predicted cognitive anxiety.

The second series of analyses examined the relationships between performance and state psychological variables. It was hypothesized that state sport- confidence (SSCI), cognitive state anxiety, and self-efficacy (outcome and performance expectations) would predict performance. Table 3 outlines the correlational results for these variables.

Table 3

Correlations Between State and Performance Measures

	Performance measures	
State measures	Finish time	Finish place
CSAI-2		
Cog. anx.	+.14	−.06
SSCI	−.57*	+.56*
Self-eff. perf.	−.06	−.06
Self-eff. outcome	+.71*	−.79*

*$p < .001$.

Outcome self-efficacy and state sport-confidence were significantly related to finishing time. Stepwise multiple-regression analyses indicated that only outcome self-efficacy predicted finishing time, Multiple *R= .71; F(1,72)=75.56,* p<.001, accounting for 52 % of the variance. Almost identical results were obtained using finishing place as a criterion variable, Multiple *R*= .79; F(1,71)=119.09, p<.001.

Discussion

The major tenet of this study was that systematic relationships exist among sport-confidence, competitive orientations, self-efficacy, cognitive anxiety, and performance. This tenet was delineated into two linked hypotheses. The first hypothesis predicted that performance orientation and trait sport-confidence were positively related to self-efficacy and to state sport-confidence and negatively related to cognitive state anxiety.

The second hypothesis proposed that state sport- confidence and self-efficacy were positively associated with performance and that cognitive state anxiety was negatively related to performance.

The first hypothesis was partially supported. Although trait sport-confidence (TSCI) predicted state sport-confidence (SSCI) and outcome self-efficacy expectations, a performance orientation did not contribute to predicting state sport- confidence. Our results indicate that an individual's enduring and consistent level of sport-confidence is a powerful predictor of his or her more transitory precompetitive state sport-confidence levels, confirming Vealey's (1986) results. Contrary to the hypothesis and previous research (Vealey, 1986), competitive orientation had no bearing on an individual's state sport-confidence (SSCI). However, SOQ win orientation and competitiveness were related to outcome self-efficacy.

Vealey (1988) found that as athletes became more accomplished and experienced they exhibited a stronger performance orientation and a weaker outcome orientation. Furthermore, she found the relationships between trait and state sport- confidence and competitive orientation using elite male and female figure skaters 15 to 25 years of age (Vealey, 1986). Perhaps performance orientation does not influence state sport-confidence levels in athletes, such as those in this sample, who are moderately performance oriented, nonelite, and inexperienced.

On the other hand, the lack of a performance-orientation influence might reflect the COI's construction. Vealey's (1986) measure of competitive orientation asks respondents to consider how satisfied they are with the results of past athletic events. Performance and outcome goals may influence past competition satisfaction without reflecting competitive orientation. A competitive orientation implies a cognitive process that guides behavior as opposed to an evaluative response to past behavioral consequences. An athlete's retrospective ratings of affective responses to performing well or poorly and winning or losing in athletic competition may have no bearing on his or her future level of state sport-confidence.

Athletes who were more win oriented and competitive, as measured with the SOQ, were more sport-confident. Although these correlational results were weak (e.g., r=.28 and .34), they contradict Vealey's (1986, 1988) results. One of the criticisms of outcome goals is that they may be unrealistic if the competition is superior. Individuals in such circumstances may exhibit low levels of state sport- confidence because their goals appear unattainable. However, if an outcome goal is salient and realistic, an athlete might exhibit normal or high levels of state sport-confidence.

Realistic and appropriate outcome goals may have been adopted in this study. For instance, the testing was conducted at dual track meets among local high schools and usually involved a limited number of competitors in each race. This gave athletes an opportunity to judge the competition's ability level and their own. As Horn and Hasbrook (1987) have indicated, peer comparison during the adolescent stage is a major source of perceived competence.

Clearly, the nature of the competition situation in this study may have contributed to the findings. However, many athletic events do not provide such a salient opportunity to judge the competition, and these findings may not generalize to other athletic settings. Finally, the varying results for the COI and the SOQ measures of competitive orientation probably reflect differences in their conceptualization and construction. Low and nonsignificant correlations between the COI and the SOQ reveal that they measure different aspects of competitive orientation.

Many unanswered questions remain regarding the concept of competitive orientations. Veroff's (1969) contention that people use either internal or external standards to evaluate performance depending on the situational demands suggests that goal choice may fluctuate depending on an individual's competitive situation. Goal choice must then be considered situationally specific as well as influenced by a trait characteristic like competitive orientation. In this study, competitive orientations were assumed stable and predictive of goal choice. The SOQ is probably an accurate indicator of an individual's overall disposition or orientation toward competitive goals in sport. Although the SOQ differentiates between individuals who choose competitive versus

noncompetitive activities (Gill & Deeter, 1988; Gill & Dzelwaltowski, 1988), competitive orientations may not predict specific goal choices within competitive settings. Measures of competitive orientation in this study taken 2 days to 1 week before the athlete's race may not be indicative of goal choice at the time of competition.

Harter and Connell (1984) posited that individuals high in perceived competence or self-confidence evaluate their success on internal standards (performance orientation), yet Horn and Hasbrook (1987) found that adolescents use both peer comparison and internal standards as sources of information to judge perceived competence. As Veroff (1969) suggested, athletes may use both types of evaluations to derive information about their competence. In this study, those athletes high in trait sport-confidence were also high in SOQ win and goal orientations.

The SOQ goal-orientation subscale was a weak but significant predictor of self-efficacy expectations for performance, accounting for 6% of the variance. This result is in line with our hypothesis and corroborates Vealey's (1986) finding that linked performance orientation to state sport-confidence.

Stronger relationships existed between trait measures and outcome self- efficacy than between trait measures and performance self-efficacy. Judging ability to run a particular time may require finer discriminative powers than judging how well one will perform relative to others, especially for inexperienced athletes. Thus, athletes may be less knowledgeable of their self-efficacy expectations for performance than of their self-efficacy expectations for outcome. Finally, in contrast to our hypothesis, the TSCI did not correlate with the CSAI-2 cognitive- anxiety subscale. For this sample, it appears that the disposition to be sport- confident is not related to cognitive state anxiety.

The second hypothesis predicted a positive association between state sport- confidence (SSCI), self-efficacy, and performance and a negative correlation between cognitive state anxiety and performance. Athletes who were highly sport- confident and had high self-efficacy expectations for outcome ran faster in their races than did individuals who were less self-efficacious and less sport-confident. However, using a stepwise multiple-regression analysis, outcome self-efficacy was the only significant predictor of finishing time. These results replicate previous research of Okwumabua (1986), who found self-efficacy responsible for 46% of the variance in adult marathoners' finishing times. Likewise, Gayton, Matthews, and Burchstead, (1986) found significant correlations between a physical self- efficacy scale and finishing times for adult marathoners.

The positive SSCI and performance correlations in this study contrast with Vealey's (1986) results. Using a sample of 48 elite gymnasts, Vealey failed to find significant correlations between state sport-confidence and performance. The positive findings in the current study could reflect the differences in sample size, sport, ability, gender, timing of test administration, or performance measures. Using an athlete's finishing place as a criterion variable produced similar results.

The relationships between outcome self-efficacy and finishing time and place versus the lack of relationship between performance self-efficacy and finishing time and place parallel the relationship between the trait measures and outcome and performance self-efficacy. In judging their own ability, inexperienced athletes may have a limited set of performance times to draw upon. In contrast, judging others involves a larger set of performance times with a wider range of performances. Thus, placing their own expectations of performance within the range of potential performances at a competitive meet may be easier than accurately placing their own expected performance within their own past range of performance. This may be especially true if the athlete is young and has limited experience, as in this study.

Linking the significant stepwise multiple-regression results of both hypotheses together helps illuminate the important findings of this study. First, the TSCI predicted state sport-confidence (SSCI), accounting for 41% of the variance. The second finding parallels the first: The TSCI accounted for 19% of the variance related to outcome self-efficacy. Next, the outcome self-efficacy measure accounted for 52% and 62% of the variance associated with finishing place and finishing time, respectively. These predictions were the most powerful in the

study. The fourth significant finding showed that a SOQ goal orientation accounted for 6% of the variance in performance self-efficacy.

These results support the hypothesis that highly confident high school long- distance runners run faster and place higher than less confident athletes. Weak support is seen for adopting a performance orientation as it appears to be associated with higher self-efficacy perceptions of performance. Contrary to the first hypothesis, competitive orientations contribute very little to an athlete's level of state sport-confidence or self-efficacy. Likewise, no support was found for the contention that cognitively anxious athletes perform poorly compared to less anxious athletes.

Finally, these results should be considered in light of the sample and sport. Competitive running is quite amenable to the setting of both outcome and performance goals. Other sports may not offer such salient measures. In addition, these male high school runners are still in an important developmental stage of their lives. Thus, these results may not generalize to other sports, ages, or levels of experience or to females. However, the prominence of high school distance running still provides a large population to which this study might be generalized.

Certainly more research in this area is recommended to substantiate the current findings and to broaden our understanding of the interactions among competitive orientations, sport-confidence, self-efficacy, cognitive anxiety, and performance. More specifically, the relationships among competitive orientations, sport-confidence, and situational goal choice should be examined as well as their antecedents.

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