

THE RELATIONSHIP BETWEEN COMPETITIVE ANXIETY, ACHIEVEMENT GOALS, AND MOTIVATIONAL CLIMATES

Nikos Ntoumanis and Stuart Biddle*

School of Education, University of Exeter

*Now at the Department of Physical Education, Sports Science and Recreation Management,
Loughborough University.

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Address for correspondence:

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Dr. Stuart J.H. Biddle
School of Education
University of Exeter
Heavitree Road
Exeter
EX1 2LU
United Kingdom
Tel: +44 (0)1392 264751
Fax: +44 (0)1392 264792
E-mail: S.J.H.Biddle@exeter.ac.uk

Professor Stuart J.H. Biddle
Department of Physical Education, Sports Science
and Recreation Management,
Loughborough University
Loughborough
Leicestershire
LE11 3TU
United Kingdom

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ABSTRACT

The purpose of this study was to examine the relationships of achievement goal orientations and perceived motivational climate to perceptions of the intensity and direction of competitive state anxiety in a sample of university athletes representing a variety of team sports. Although some studies have demonstrated that task orientation and mastery climate are associated with adaptive emotional patterns and ego orientation and performance climate are linked to less adaptive emotions, there are other studies which have not verified these findings. In the present study, structural equation modelling was used to test these links. The results showed that perceptions of a performance climate were associated with ego orientation, whereas perceptions of a mastery climate were linked to task orientation. Furthermore, no significant links were found between task orientation and direction of competitive anxiety, while it was shown that the impact of ego orientation on the intensity and direction of both cognitive and somatic anxiety was exerted through self-confidence. No significant direct links were found between motivational climates and competitive anxiety, thus implying that motivational climates may have an indirect impact on affective responses through the different goal orientations. The findings of the present study are discussed along with suggestions for examining situational and individual difference variables that may explain the relationships between intensity and direction of competitive anxiety, and achievement goals and motivational climates.

Keywords: goal orientations, motivational climates, competitive anxiety.

A considerable amount of research in sport psychology has examined the nature of competitive anxiety and how it relates with various motivational and cognitive variables. The aim of that line of inquiry is to provide important information with regard to situations where athletes may experience negative affective states, the antecedents of such situations, and the possible means that will enable sport performers to cope successfully with their negative emotions. Current research in sport (competitive) anxiety has primarily based its analysis on the multidimensional conceptualization and measurement of anxiety symptoms in other areas of psychology. Specifically, Morris, Harris, and Hutchings (1981) have distinguished between cognitive anxiety (worry) and somatic anxiety (emotionality). They referred to negative expectations and cognitive concerns about oneself and the situation as the elements of cognitive anxiety, while the somatic component of anxiety was considered to reflect perceptions of physiological responses such as nervousness and tension.

A significant number of studies in sport psychology have explored competitive anxiety using a multidimensional measurement instrument, the Competitive State Anxiety Inventory-2 (CSAI-2; Martens, Burton, Vealey, Bump, & Smith, 1990), which measures cognitive and somatic anxiety as well as self-confidence. The results of those studies have provided support for the distinction between cognitive and somatic anxiety components, since they have been shown to have different antecedents, different temporal characteristics, different performance consequences, and also to respond differently to interventions (for a review, see Jones, 1995). However, despite these significant advances, quite often the results of various studies have not been very enlightening or encouraging, such as in explaining much of the variance in performance (Jones, 1995).

One significant advance in the understanding of the nature of competitive anxiety was the introduction of the notion of "direction" of anxiety (Jones, 1991). This refers to how sport performers label the intensity of the cognitive and physiological symptoms they experience

on a debilitating-facilitative continuum. Furthermore, in an effort to illustrate mechanisms that may explain how sport performers interpret their anxiety symptoms, Jones (1995) modified Carver and Scheier's (1988) control model of anxiety. According to Jones (1995), anxiety symptoms are perceived as facilitative or debilitating depending on athletes' perceptions of the control they can exert over both the environment and the self, and also on their belief regarding their ability to cope with the anxiety they experience and to attain their goals.

Previously, in the area of educational psychology, Alpert and Haber (1960) and Wine (1980) also offered the suggestion that anxiety symptoms may be perceived as positive (facilitative) or negative (debilitative) by different individuals. In a series of studies, Jones and associates (e.g. Jones & Swain, 1995; Ntoumanis & Jones, in press; Swain & Jones, 1996) provided support for some of the predictions of the control model and substantiated the need for distinguishing between intensity and interpretation (direction) of anxiety symptoms.

A potentially important dispositional factor that could be examined in relation to its ability to predict positive and negative interpretations of anxiety is that of goal orientations (Dweck & Leggett, 1988; Nicholls, 1989). These authors have developed social-cognitive theories which argue that the construction of perception of competence in achievement settings is closely related to two major goal perspectives. Specifically, when individuals evaluate their performance based on normative standards, that is when they define success and failure in comparison to the performance of others, then they are in a state of ego goal involvement. Alternatively, when performance evaluation is self-referenced, that is when it is based on personal improvement and learning, then individuals are in a state of task goal involvement. According to Dweck and Leggett (1988), and Nicholls (1989), whether individuals will be in a state of task or ego goal involvement will depend on both the influence of situational variables and on individuals' dispositional differences on goal

perspectives (i.e. on their goal orientations). It has been hypothesized that goal orientations can be altered over time because they are subjected to influences of different psychological climates and to developmental changes (Nicholls, 1989).

As Urdan and Maehr (1995) have contended, these goals affect less the *amount* of motivation of individuals and more the *quality* of their motivation, which in turn affects behavioral, cognitive, and affective outcomes. Specifically, Roberts (1992) suggested that task orientation is associated with adaptive motivational patterns, that is, challenge seeking, use of effective strategies, and exertion of effort. With regard to ego-orientation, Nicholls (1989) theorized that adaptive patterns of behavior and cognition are also expected, albeit usually only in the short-term, from those individuals who hold perceptions of high ability. When ego orientation is coupled with low perceived competence, generally maladaptive motivational patterns are observed, characterized by lack of effort and persistence, devaluation of activities, and selection of inappropriate tasks and strategies. In thorough reviews of relevant studies, Duda (1992, 1996) has shown that task and ego goal orientations can predict, in a conceptually consistent manner, beliefs about the causes of success in physical activity (e.g. Walling & Duda, 1995), views about the purposes of physical activity involvement (e.g. Treasure & Roberts, 1994), sportsmanship attitudes and behavior (e.g. Duda, Olson, & Templin, 1991), and motives for participation (e.g. White & Duda, 1994).

Recently, Treasure and Roberts (1995) argued for the need to examine the influence of situational, as well as dispositional, variables on individuals' cognitive and affective responses in physical activity settings. While goal orientations have been extensively examined in physical activity, it was only during the last five years that there has been a systematic effort to investigate the impact of different psychological environments on the motivation of participants. This line of research has been significantly influenced by the work of Ames (1992) in classrooms, who has argued that the subjective meaning of the

psychological environment is a critical factor in predicting cognitive and affective components of motivation. Ames (1992) has distinguished between perceptions of mastery and performance motivational climates. If athletes are involved in decision-making, their grouping not based on ability, success defined and evaluated in terms of individual effort and improvement, and discovery of new learning strategies is encouraged, then it is likely that athletes will perceive their sport environment as being mastery-oriented (Ames, 1992). In contrast, when the focus of learning is on interpersonal comparison, evaluation based on normative standards, grouping of athletes based on ability, and time allocated for learning is inflexible, then it is likely that athletes will have perceptions of a performance-oriented motivational climate.

Due to the qualitatively different instructions and interactions embedded in the two motivational climates, Ames (1992) has predicted more adaptive motivational outcomes for those placed in mastery than in performance climates. Research in physical education and sport (e.g. Biddle et al., 1995; Papaioannou, 1994; Seifriz, Duda, & Chi, 1992) has verified Ames's (1992) prediction. Specifically, perceptions of mastery climate have been associated with high intrinsic interest in activities, emphasis on effort, and satisfaction. In contrast, perceptions of performance climate have been linked to less adaptive or to maladaptive motivational patterns such as negative attitudes towards activities, boredom, and emphasis on normatively defined ability.

Competitive anxiety, achievement goals, and motivational climates

According to achievement goals theories, ego and task goal orientations are differently related to affect in achievement situations. Specifically, individuals with a dominant ego orientation, and especially these who have perceptions of low competence, are thought to be more susceptible to the stress and anxiety of competition. As Roberts (1992)

has explained, winning and losing in sport are highly unstable and relatively uncontrollable objective demands and, thus, they can create negative affective states in these athletes. On the other hand, sport performers with a predominant task orientation are not usually susceptible to competitive anxiety, since they possess internal standards of performance and the outcome they strive for is subjective and relatively controllable.

Positive relationships between negative affective states (such as state or trait anxiety, tension, cognitive interference, worry, pressure, etc.) and goal orientations related to ability (ego, outcome), along with negative or no relationships between negative affect and goal orientations based on effort (task, mastery) have been reported in studies by Vealey and Campbell (1988), White and Duda (1991), and White and Zellner (1996). Unfortunately, few studies have examined whether there are variables that can moderate the relationship between achievement goals and negative affect. Exceptions are the studies by Boyd, Callaghan, and Yin (1991), and Goudas, Biddle, and Fox (1994), which showed that ego-oriented athletes with high perceived competence and high perceived success reported lower trait anxiety and tension than low perceived competence or low perceived success athletes.

However, there are a significant number of studies which have not verified some or all of the relationships described above. Specifically, Newton and Duda (1995) found that task and ego goal orientations were not significantly related to cognitive and somatic state anxiety. Furthermore, contrary to Hall and Kerr's (1997) hypotheses, ego orientation did not predict somatic state anxiety, and task orientation was unrelated to both cognitive and somatic anxiety. In addition, Vlachopoulos, Biddle, and Fox (1997) found that negative affect was unrelated to both task and ego goal orientations, while, Duda, Chi, Newton, Walling, and Catley (1995), contrary to previous findings, showed that for some of the athletes they examined, pressure/tension was positively related to task orientation and negatively related to ego orientation.

1 Different arguments have been proposed by some of the previous authors to explain
2 the results that do not agree with theoretical predictions. For example, it was maintained that
3 goals may be more situation-specific than was originally thought (Martin & Gill, 1991), or
4 that motivational climate may play a more important role in predicting affective responses
5 (Duda et al., 1995). These arguments are probably correct, but, as far as competitive anxiety
6 is concerned, it is possible that the athletes in the above studies differed in their cognitive
7 interpretation (direction) of their anxiety symptoms. For example, studies by Gould, Horn,
8 and Spreeman (1983), and Feltz and Albrecht (1986), showed that many of the elite junior
9 athletes they examined felt that anxiety and nervousness usually helped their performance.
10 The argument that competitive stress is not always debilitating has also been proposed by
11 Gould, Wilson, Tuffey, and Lochbaum (1993).

12 In addition to goal orientations, motivational climates have also been found to
13 influence affect in physical activity. Specifically, the negative affective responses stemming
14 from external pressures (parents, coaches, and peers) to win have been identified and
15 described by Gould et al. (1993), Scanlan, Stein, & Ravizza, (1991), and Stratton (1995).
16 Moreover, several studies (Newton, & Duda, 1993; Seifriz et al., 1992; Walling, Duda, &
17 Chi, 1993) have employed a sport-specific measure of motivational climates [the Perceived
18 Motivational Climate in Sport Questionnaire; Seifriz et al., (1992)], and showed that negative
19 affect in the form of self-reported tension and pressure was positively related to perceptions
20 of a performance climate and negatively related to perceptions of a mastery climate.

21 However, similar to research on dispositional goals, not all the studies that have
22 examined how perceptions of different motivational climates relate to different affective
23 responses have found the pattern of relationships hypothesized. For example, Grieve,
24 Whelan, Kottke, and Meyers (1994), and Papaioannou (1995), showed that competitive or
25 performance environments were not related to levels of trait anxiety or mood disturbance. A

possible explanation for these conflicting results, as far as anxiety is concerned is that, similar to the goal orientations area, researchers have assumed that anxiety is perceived by sport performers as always detrimental to their performance. Because of these conflicting findings, more research is needed on the motivational antecedents of negative affect and especially competitive anxiety. The reason is that since debilitating perceptions of anxiety can adversely influence performance (Jones, 1995), a better understanding of the sources of competitive anxiety may direct greater effort toward the prevention rather than the treatment of it.

In view of the above findings, the purpose of the present study was to examine concurrently the relationships between intensity and perception of both cognitive and somatic anxiety with achievement goal orientations and motivational climates. Firstly, in accordance with theoretical predictions (e.g. Ames 1992), it was hypothesized that perceptions of a mastery climate would be associated with task orientation, whereas perceptions of a performance climate would be related to ego orientation. Motivational climates and goal orientations are presented at the same stage in the model to reflect their reciprocal influence. The second hypothesis concerned the relationships between goal orientations and intensity and interpretation of anxiety symptoms. With regard to task orientation, it was hypothesized that it would be positively related to the direction scores of both anxiety modes, since according to Jones's (1995) control model, positive interpretations of anxiety are more likely to be held by individuals who perceive to exert control over a situation. Such perceptions of control are usually encountered in athletes with high task orientation (Roberts, 1992).

As far as ego orientation is concerned, it was hypothesized that its influence on the anxiety responses would be exerted through self-confidence. Specifically, it was predicted that high self-confidence would be associated with facilitative perceptions of both anxiety modes and with low levels of anxiety intensity. In Nicholls's (1989) theory it is perceived competence that influences the affective responses of ego-oriented individuals. However, this

study sought to examine whether the belief ego-oriented athletes have of their ability to successfully carry out a task *at a particular moment* (self-confidence), can influence their perceptions of *state* anxiety responses. Although self-efficacy (Bandura, 1986) could have been used instead, self-confidence was preferred because it has been employed extensively in the past in research on competitive anxiety, and because as Feltz (1988) has contended, “self-confidence is a central mediating construct of achievement strivings” (p. 423).

A third objective of this study was to explore the relationships between motivational climates and intensity and interpretation of competitive anxiety. Based on theoretical tenets (Ames, 1992) and research on social-situational predictors of anxiety and stress (e.g. Lewthwaite & Scanlan, 1989; Scanlan, et al., 1991), it was hypothesized that mastery climate would be positively linked with the direction of the anxiety modes whereas performance climate would be associated with increased intensity of cognitive and somatic anxiety. Lastly, following the suggestion of two anonymous reviewers, it was examined whether motivational climates and self-confidence could moderate the impact of achievement goals on the anxiety responses. Specifically, it was hypothesized that task orientation would be associated with more facilitative anxiety symptoms when mastery climate was high than low. Furthermore, it was predicted that ego orientation would be related to high levels of anxiety intensity when performance climate was high and self-confidence was low.

METHOD

Participants

The participants (n=146) were male (n=84) and female (n=62) university athletes from the south west of England representing a variety of team sports (hockey, rugby, soccer, netball, basketball, and volleyball). Ages ranged from 18 to 26 years (M=21; SD= 2.36).

Instrumentation

Modified version of the Competitive State Anxiety Inventory-2 (CSAI-2)

The CSAI-2, developed by Martens et al. (1990), is a 27-item inventory, with nine items in each of its three subscales. The first two subscales measure the intensity of cognitive and somatic anxiety symptoms experienced prior to competition, while the third subscale measures state self-confidence. The psychometric validity of the CSAI-2 has been demonstrated by Martens et al. (1990). Examples of cognitive anxiety items include “I am concerned about losing” and “I am concerned about reaching my goal”, while somatic anxiety items include “My heart is racing” and “My body feels tight”. Self-confidence items include “I feel at ease” and “I’m confident about performing well”. The intensity response scales ask each participant to rate the intensity with which they experience each anxiety symptom prior to a competition on a Likert scale ranging from 1 ("not at all") to 4 ("very much so").

In addition, a direction scale was included for the cognitive and somatic anxiety items. The direction scale ranged from -3 ("very debilitating") to +3 ("very facilitative"), and asked the participants to rate the degree to which the intensity of the anxiety symptoms they experienced was either facilitative or debilitating to their performance. The internal reliability coefficients (Cronbach’s alphas) for all the modified CSAI-2 subscales were satisfactory: cognitive anxiety intensity= .74, somatic anxiety intensity= .85, cognitive anxiety direction= .73, somatic anxiety direction= .78, self-confidence= .90.

Task and Ego Orientation in Sport Questionnaire (TEOSQ)

The TEOSQ (Duda & Nicholls, 1992) is a thirteen item questionnaire with seven items measuring task orientation and six items measuring ego orientation. When completing the TEOSQ, participants are requested to think of when they felt most successful in their

sport and then indicate their agreement with items reflecting task- and ego-oriented criteria. Examples of task orientation items included "I work really hard" and "I do my very best", whereas on the ego orientation subscale there were items such as "The others can't do as well as me" and "I'm the best". The response scale has a Likert format ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The psychometric validity of the TEOSQ has been demonstrated by Duda (1992). In the present study the internal reliability coefficients were satisfactory, with $\alpha=.84$ for the task subscale and $\alpha=.85$ for the ego subscale.

Perceived Motivational Climate in Sport Questionnaire (PMCSQ)

The PMCSQ (Seifriz et al., 1992) assesses athletes' perceptions of the motivational climates that characterize their teams. This questionnaire has a Mastery (9 items) and a Performance (12 items) subscale. The 21 items were answered following the stem "On this particular team...", and responses were rated on a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Examples of mastery climate items included "Players try to learn new skills" and "Trying hard is rewarded", whereas on the performance climate scale there were items such as "Only the top players get noticed" and "Players are taken out for mistakes". The psychometric validity of the PMCSQ has been demonstrated by Seifriz et al. (1992) and Walling et al. (1993). In the present study the internal reliability coefficients were satisfactory, with $\alpha=.85$ for the mastery subscale and $\alpha=.87$ for the performance subscale.

Procedure

All the participants took part in the final phase ("knock out" matches) of the British Universities Championships. Similar to other studies on motivational climates, the questionnaires were distributed at the mid-end of the competitive season when a certain motivational climate was already established (Duda & Whitehead, in press). An informed

consent was obtained from all the participants prior to the completion of the questionnaires. The TEOSQ and PMCSQ were administered in a training session. The modified CSAI-2 was administered within one hour prior to competition employing Martens et al.'s (1990) instructions, which underlined the need for honesty and the indication of the athletes' feelings "right now". It was emphasized to the participants that there were no right or wrong answers and that their replies would be kept confidential.

RESULTS

Descriptive Statistics

Table 1 presents the means, standard deviations, and correlations among all the variables in the study. An examination of the means and standard deviations shows that the participants were moderately anxious, but they held slightly positive interpretations of their cognitive and somatic anxiety. The participants also had high perceptions of mastery climate and task orientation, and moderate to high perceptions of performance climate, ego orientation, and self-confidence. The correlation between task and ego goal orientations was not significant ($r = -.03$), thus confirming Nicholls' (1989) argument that the two goals are orthogonal. A significant negative correlation emerged between perceptions of mastery and performance climate ($r = -.49$), which is consistent with previous research (Walling et al., 1993; Kavussanu & Roberts, 1996).

Structural Equation Modelling

The relationships among motivational climates, goal orientations, and anxiety responses, were examined through structural equation modelling (SEM). SEM has been recently employed in the achievement goals literature (e.g. Cury et al., 1996; Vlachopoulos et al., 1997) since it is a useful tool for the development and testing of complex social theories

(Duncan & Stoolmiller, 1993). SEM has an advantage over regression analytic techniques in that parameters of a model can be specified simultaneously. For example, the links between ego orientation and self-confidence are assessed in the presence (and potential influence) of all the other variables in the model, something that cannot be done using regression techniques. The EQS software (Version 5.0) was employed, and the data were analyzed using maximum likelihood analysis. A hypothesized model was proposed and in order to evaluate the adequacy of its fit to the data, various indices of fit that are provided by EQS were examined. These were the chi-square (χ^2) value, the Comparative Fit Index (CFI), the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), and the Root Mean Square Residual (RMSR).

The χ^2 value indicates the resemblance of the observed covariances to those implied by the hypothesized model. To the extent that these are not significantly different, as indicated by a non-significant χ^2 value, the fit of the data to the hypothesized model is assumed to be adequate. The CFI can reflect model fit relatively well in all sample sizes and can avoid the underestimation of fit sometimes found in models with other indices of fit. The GFI reflects the relative amounts of variances and covariances in the observed variables that are explained by the hypothesized model. The AGFI is an index of parsimony, that is, it judges the adequacy of the model fit in relation to its degrees of freedom (the number of free parameters to be estimated). The CFI, the GFI, and the AGFI can range from 0-1, nevertheless, values of .90 or higher on these indices are deemed desirable. Lastly, the RMSR represents an average of the residuals between the estimated and the observed covariance matrices. RMSR values of less than .10 indicate an acceptable fit.

The hypothesized model (see Figure 1) specified that perceptions of a mastery climate would be linked to task orientation, whereas perceptions of a performance climate would be associated with ego orientation. Task and ego goal orientations were assumed to be unrelated,

whereas a negative link was specified between mastery and performance motivational climates. The impact of ego orientation on anxiety was predicted to be exerted through self-confidence. Specifically, it was hypothesized that self-confidence would be positively associated with facilitative perceptions of cognitive and somatic anxiety and negatively associated with the intensity of both anxiety modes. Positive paths were specified linking the two anxiety direction variables with task orientation and mastery climate, and the two anxiety intensity variables with ego orientation and performance climate.

The results showed that the hypothesized covariance structure of the model did not fit the data well, since the indices of fit were inadequate [$\chi^2(22) = 73.33$, $p < .01$; CFI = .790; GFI = .906; AGFI = .807; RMSR = .04]. In order to revise the model, two modification tests that are provided by EQS were examined. The first is the Lagrange Multiplier which assesses whether parameters that were set to zero in the model are in fact nonzero, and hence they should be better treated as free parameters to be estimated. The second test is the Wald test and indicates exactly the opposite, that is whether sets of parameters that were treated as free in the model could in fact be simultaneously set to zero without substantial loss in model fit (Bentler, 1995).

On the basis of the results of the modification tests, the model was revised by dropping the paths linking motivational climates with intensity/direction of anxiety and task orientation with the anxiety direction variables. Furthermore, the errors of cognitive and somatic anxiety direction were allowed to be correlated. The goodness of fit indices revealed an adequate fit of the revised model to the data [$\chi^2(27) = 38.85$, $p = .07$; CFI = .952; GFI = .948; AGFI = .913; RMSR = .028]. The revised model¹ is presented in Figure 2.

Moderated hierarchical regression analyses

Moderated hierarchical regression analyses were conducted to examine whether motivational climates and self-confidence moderated the impact of achievement goals on the anxiety responses. Specifically, after partialling out the main effects, the interest was on the interaction between task orientation and mastery climate, and between ego orientation, performance climate and self-confidence. The intensity and direction scores of both anxiety modes were used as dependent variables in a series of hierarchical regressions, where all the variables had been previously standardized to avoid multicollinearity between lower and higher order regression terms (Aiken & West, 1991). None of the interactions reached statistical significance. This may be partially attributed to the low statistical power of this analysis to detect moderators (Aguinis & Stone-Romero, 1997; Finney, Mitchell, Cronkite, & Moos, 1984).

DISCUSSION

This study employed structural equation modelling and moderated hierarchical regression analyses to examine the relationships among achievement goal orientations, motivational climates, and competitive anxiety in a sample of British University athletes. In agreement with recent developments in the area of competitive anxiety, both the intensity and the interpretation of the anxiety symptoms were assessed. Furthermore, self-confidence, a state measure of perceived ability, was used to examine its role in the ego orientation-competitive anxiety relationships. The results provide partial support for our hypotheses.

Motivational climates and achievement goals

Firstly, it was hypothesized that perceptions of a performance climate would be associated with ego orientation, whereas perceptions of a mastery climate would be linked to

task orientation. The structural equation modelling analysis verified this prediction. It seems, therefore, that athletes prefer to belong to teams with compatible views on the nature and the means of achievement. For example, individuals who use effort as a criterion to judge their competence are more likely to select sport environments which emphasize and reward effort. In contrast, athletes who value winning and interindividual comparison will prefer to belong to sport teams which glorify winning and pay most attention to the “stars”. This suggests some “matching hypothesis” between different achievement goals and motivational climates which is consistent with the literature (e.g. Biddle et al., 1995; Cury et al., 1996). However, when athletes perceive their team climate as incompatible with their dispositional views on achievement, motivational problems may occur (Roberts, 1992). Unfortunately cross-sectional designs cannot offer strong support for the “matching hypothesis” and, therefore, it would be desirable if longitudinal studies were conducted to examine the relationships between motivational climates and achievement goals over time. Goal orientations and motivational climates were presented at the same stage of the model since in his dynamic process model of motivation, Roberts (1992) has avoided providing causal arrows between these variables, possibly because their influence is reciprocal. Different goal orientations can influence the selection of cues that an individual will pick up from a sport environment, but also long-term exposure in a certain motivational climate can affect the achievement goal orientation of an individual.

A significant link was found between mastery and performance climates. As Walling et al. (1993) have explained, performance and mastery climates cannot be unrelated, because it would have been a contradiction if within the same team, for example, all the players had an important role and at the same time the coach gave most attention to the stars. However, Ames and Archer (1988) found in an academic context the two climate dimensions to be uncorrelated. Such differences in the relationship between performance and mastery climates

could reflect domain-specific peculiarities. They may also be due to the wording of the questionnaires, since the items used by Ames and Archer (1988) included the word “I”, thus potentially mixing the assessment of dispositional goals (which are uncorrelated) and situational influences² (Duda & Whitehead, in press).

Goal orientations and competitive anxiety

A state measure of perceived ability (i.e. self-confidence) was employed to examine its role in the ego orientation-competitive anxiety relationships. Although it is the trait characteristic of perceived competence that is described by Nicholls (1989) to influence ego orientation, it was assumed in this study that *state* anxiety responses may be more influenced by *state* beliefs on one’s ability to successfully perform a task at a certain level (i.e. state self-confidence). As competitive anxiety is closely related with self-confidence (or perceived ability at a trait level), which is of central importance for ego-oriented individuals, it was hypothesized that the impact of ego orientation on the anxiety responses would be exerted through self-confidence. The results showed that this was the case and particularly that high self-confidence was associated with low levels of intensity of anxiety and with facilitative perceptions of both anxiety modes. This gives credit to the argument that ego orientation can be associated with adaptive affective responses as long as it is accompanied by perceptions of high ability (Roberts, 1992). Individuals with such characteristics may generally experience low levels of intensity of anxiety due to the belief that they are able to win in sport and gain social recognition. Furthermore, it seems that these individuals use their pre-competitive cognitive and somatic anxiety feelings as stimulants to a more effective performance. However, the long-term effects of ego orientation on competitive anxiety still need to be explored through longitudinal research, since winning in sport is a relatively unstable

outcome. Possible failures may lead ego-oriented individuals to experience debilitating anxiety symptoms and other aversive emotional reactions to competition.

Another hypothesis of this study was that there would be direct and positive relationships between task orientation and the direction scores of cognitive and somatic anxiety. However, the results of the structural equation modelling analysis showed these links were not significant. Instead of rejecting insignificant results, alternative explanations or possible missing links in theoretical models should be sought. It is of interest to note that in a meta-analysis of studies that have looked at the links between achievement goals and affect, that the authors have recently completed, it was found that the task orientation-negative affect relationship was small and heterogeneous (Ntoumanis & Biddle, 1997). A subsequent moderator analysis revealed as a moderator of this relationship the degree of arousal when negative affect is experienced [see Russell's (1980) circumplex model of affect]. Specifically, the task orientation-negative affect relationship was much greater ($r = -.37$, compared to $r = -.01$) when low arousal (primarily boredom) rather than high arousal negative affect (primarily anxiety) was experienced. A possible explanation for this result is that task orientation has been mainly measured as the degree of effort that one exerts in an achievement situation. Effort is usually negatively related to boredom. In contrast, task orientation is likely to be unrelated to competitive anxiety because its impact can be explained through other variables.

Perceptions of control over a situation can be such a variable, since in Jones' (1995) control model of competitive anxiety such perceptions can influence the cognitive labelling of anxiety symptoms as facilitative or debilitating. Although Nicholls (1989) hypothesized that task orientation leads to enhanced perceptions of situational and emotional control, in the realm of competitive sport where winning is emphasized, some task-oriented individuals may have doubts about their ability to exert appropriate control. Furthermore, in Lazarus's (1993) Cognitive-Motivational-Relational Theory of Emotion, the application of the appropriate

1 coping skills can determine whether positive or negative emotions will be experienced. In this
2 theory, motivational and cognitive appraisal variables interact to produce different affective
3 outcomes. It would be interesting to examine whether the influence of goal orientations on
4 affect is exerted through the application of different problem-, emotion-, and avoidance-
5 focused coping strategies. The important role of coping in determining facilitating and
6 debilitating perceptions of anxiety is also highlighted in Jones's (1995) control model of
7 competitive anxiety. Goal importance (Lewthwaite, 1990) is another useful variable to be
8 studied, since irrespective of whether goals are based on social comparison or individual
9 improvement, negative affective states are more likely to occur when important goals are
10 perceived to be under threat.

12 *Motivational climates and competitive anxiety*

13 Another purpose of this study was to examine whether performance and mastery
14 climates can directly affect the intensity and interpretation, respectively, of anxiety
15 symptoms. No significant direct links were found, thus implying that motivational climates
16 may have an indirect impact on the anxiety responses through goal orientations. However,
17 such an indirect path was evident only in the case of performance climate, which was linked
18 to ego orientation, and the latter, through self-confidence, affected competitive anxiety. A
19 possible statistical explanation for the absence of hypothesized links between some of the
20 variables in this study is that the relatively high negative skewness of task orientation and
21 mastery climate scores restricted the range of scores in these two subscales. Tabachnick and
22 Fidell (1989) demonstrated that restriction in range of scores of one variable can deflate the
23 correlation among two variables. This may have been the case here when mastery climate and
24 task orientation were related to competitive anxiety. The high levels of task orientation and
25 mastery climate may reflect the nature of the sample under study. The participants were

1 university athletes (a typical sample of the studies in this area) and although inter-university
2 competition is quite important, it is unlikely to reduce task involvement or produce the high
3 levels of ego involvement and performance climate that may be encountered in professional
4 sport.

5 Possible interactions between goal orientations, motivational climates, and self-
6 confidence, were examined through moderated hierarchical regression analyses. However,
7 the interaction effects of task orientation and mastery climate, and of ego orientation,
8 performance climate, and self-confidence, on the intensity and direction of the anxiety modes
9 were not significant. This can be partly attributed to the low power of moderated hierarchical
10 regression analysis to detect moderated relationships (Aguinis et al., 1997; Finney et al.,
11 1984). It is worth noting that Aguinis et al. (1997) performed a Monte Carlo simulation,
12 which showed that even when other conditions that affect power are optimal (e.g. high
13 internal reliabilities), restrictions in range can result in power levels below the .80 standard
14 suggested by Cohen (1992). As previously shown, the sport performers in this study scored
15 generally high in task orientation and mastery climate, thus restricting the range in scores and
16 the variance in the corresponding subscales.

17 Furthermore, it is possible that motivational climates and achievement goals interact
18 to produce state goals, or a certain degree of *goal involvement*, a variable that was not
19 assessed here. Goudas, Biddle, Fox, and Underwood (1995), and Swain and Harwood (1996),
20 have shown that goal involvement is an important variable in predicting motivational and
21 cognitive indices. Future studies should examine how qualitatively different states of goal
22 involvement can be used to explain the influence of achievement goals and motivational
23 climates on competitive anxiety.

24

1 *Conclusions*

2 The results of this study provide support to findings by Jones and co-authors (e.g.
3 Jones & Swain, 1995; Ntoumanis & Jones, in press; Swain & Jones, 1996), who have
4 demonstrated that competitive anxiety is not always perceived as being detrimental to sport
5 performance. Indeed, in the present study 52.7% of the participants reported that they
6 experienced both their cognitive and somatic anxiety as facilitative to their performance, in
7 contrast to 15.1% of the athletes who perceived both anxiety modes as debilitating.

8 In summary, the present study showed that perceptions of a mastery climate are more
9 likely to be linked with task orientation, whereas perceptions of a performance climate are
10 related to ego goal orientation. These results have implications for coaches and parents in
11 terms of the psychological environment they attempt to create in sport. That is, if they want to
12 foster a task orientation they should provide motivational cues that individuals will perceive
13 as task-related. Furthermore, this study showed that ego orientation is linked with facilitative
14 perceptions of anxiety only when it is accompanied by perceptions of high self-confidence.
15 However, special care should be taken since the long-term effects of holding an ego
16 orientation, even among those who are high in perceived competence, on motivational
17 processes and outcomes are most likely to be negative (Duda, 1992).

18 Various studies (e.g. Duda et al., 1995; Newton & Duda, 1993; Walling et al., 1993)
19 have consistently reported a positive relationship between positive affect (in the form of
20 enjoyment and satisfaction) and task orientation or mastery climate. Furthermore, ego
21 orientation and performance climate have been found to negatively correlate with positive
22 affect. An interesting future research direction is to examine whether goal orientations and
23 motivational climates are more capable of predicting positive rather than negative affective
24 outcomes, and under what circumstances is this more likely to occur. The above point may
25 also offer some explanation to the weak links that were found in this study between the

1 motivational variables and the competitive anxiety symptoms. Carrying out a meta-analysis
2 on the relationships between achievement motivation and positive and negative affect in
3 physical activity contexts would be helpful to this direction. This meta-analysis is feasible
4 since there is a considerable number of studies in this area. Emotions are an inherent
5 characteristic of physical activity and sport and deserve the appropriate attention from sport
6 psychologists.

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Authors' Notes:

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Notes:

1. We also used the MRF subscales (Krane, Joyce, & Rafeld, 1994), instead of the CSAI-2, as indicators of competitive anxiety to examine its validity for future research purposes.

We found that the model in Figure 2 again had a good fit with this new scale.

Furthermore, as part of a larger study that we have recently conducted in the area of coping, the same model had an acceptable fit in a sample of 356 British athletes.
2. The authors would like to acknowledge the advice of an anonymous reviewer on this point.

Table 1. Means (M), Standard Deviations (SD), and correlations among the CSAI-2, TEOSQ, and PMCSQ variables.

	M	SD	1	2	3	4	5	6	7	8	9
1. CAI	2.40	.50		.40**	-.26**	-.33**	-.41**	0	-.19*	-.09	-.03
2 SAI	1.81	.51			-.19*	-.06	-.45**	.07	-.14	-.02	-.05
3. CAD	.57	.82				.50**	.39**	0	.13	.04	.05
4. SAD	.26	.68					.22**	0	.06	.06	0
5. SC	2.69	.61						.05	.25**	.13	.08
6. Task	4.01	.65							-.03	.55**	-.20*
7. Ego	2.72	.93								-.04	.33**
8. Mastery	3.91	.61									-.49**
9. Performance	2.45	.72									

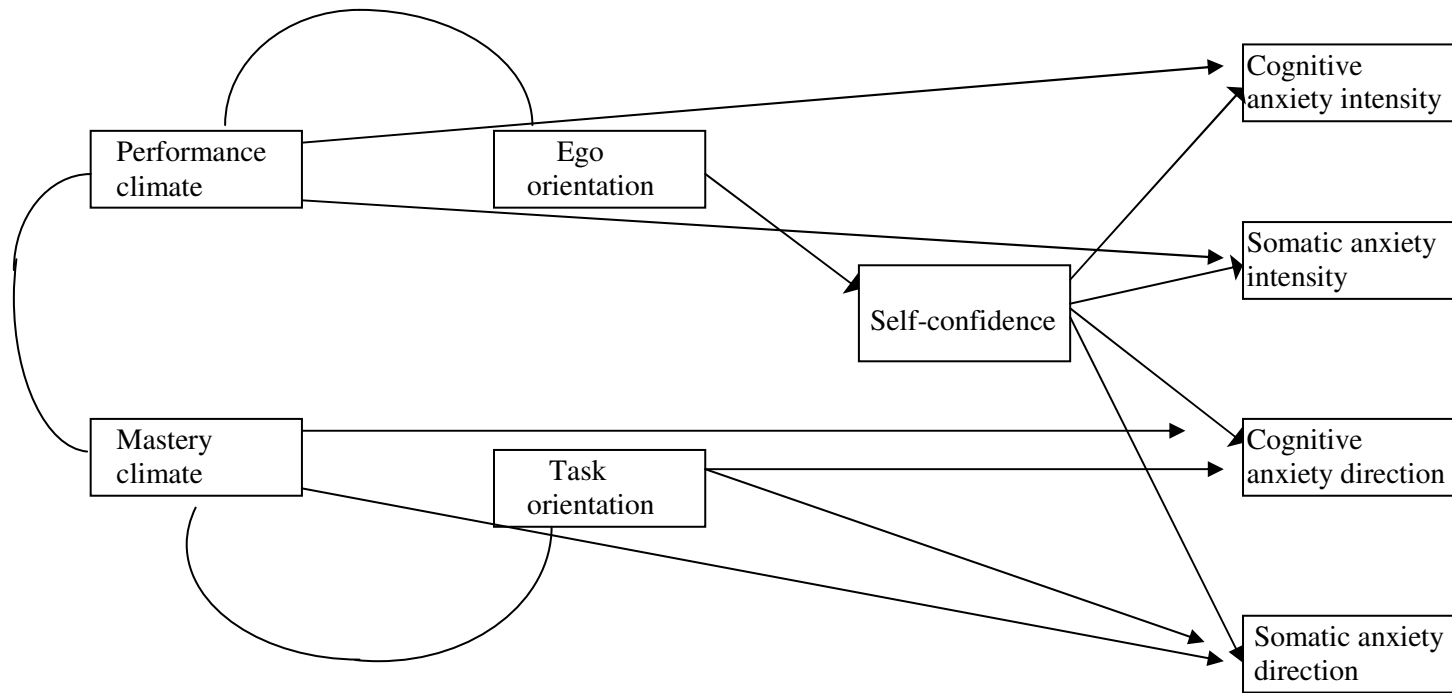
*p<.05, **p<.01

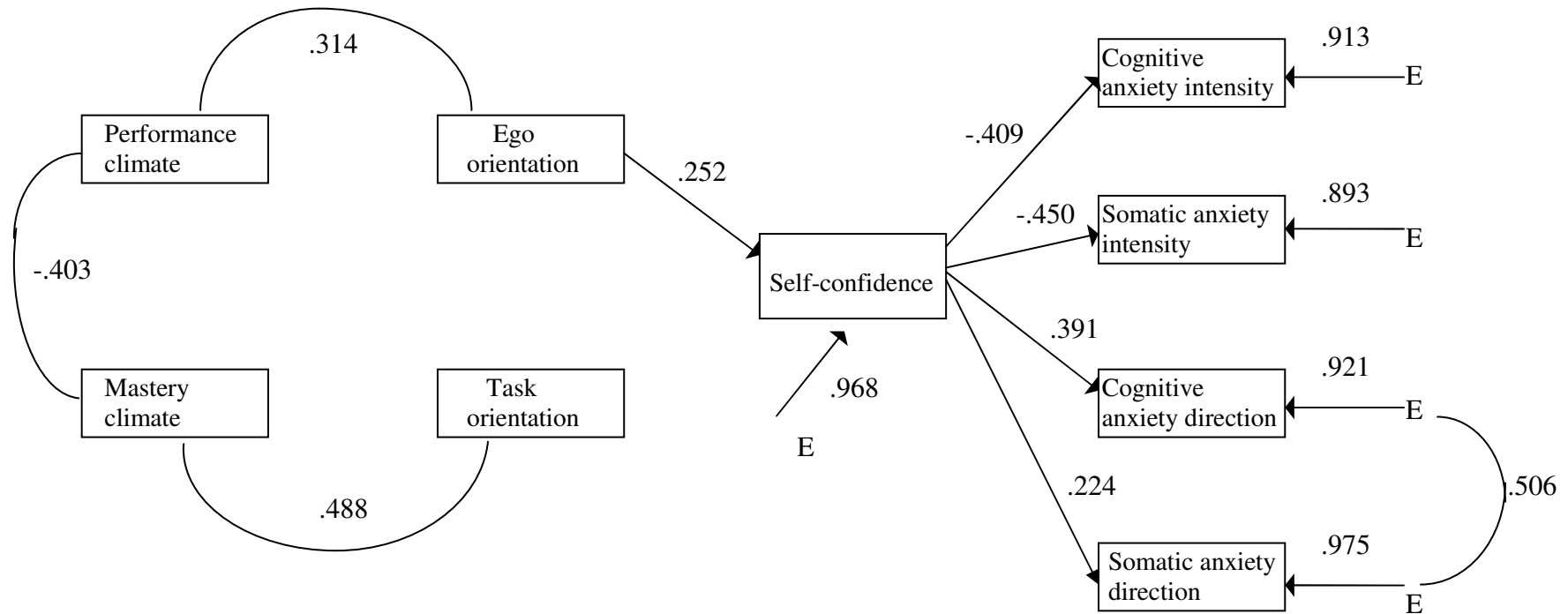
CAI= Cognitive anxiety intensity, SAI= Somatic anxiety intensity, CAD= Cognitive anxiety direction, SAD= Somatic anxiety direction, SC = Self-Confidence

Figures Captions

Figure 1: The hypothesized model of the relationships between achievement goals, motivational climates, and competitive anxiety.

Figure 2: The revised model.





Note: All the path coefficients are statistically significant at the .05 level.

