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The Relationship of Perceived Motivational Climate to Intrinsic Motivation and Beliefs About Success in Basketball

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Drawing from contemporary goal perspective theories of achievement motivation, this investigation had as its primary purpose to determine the relationship of perceived motivational climate to intrinsic motivation and attributional beliefs in a sport setting. This study also examined the degree to which the dependent variables of interest are a function of situational goal structure, dispositional goal orientations, or both. Subjects, 105 male basketball players from nine varsity high school teams, were requested to complete the four instruments. Results indicated that the Perceived Motivational Climate in Sport Questionnaire was comprised of two valid and reliable subscales, the Mastery and Performance Climate scales. Perceptions of a mastery-oriented climate positively related to reported enjoyment and the belief that effort leads to achievement. Perceptions of a performance-oriented climate were associated with the view that superior ability causes success. In general, indices of intrinsic motivation and attributional beliefs were best predicted by dispositional goal orientation.

Key words: perceived motivational climate, intrinsic motivation, success beliefs, achievement motivation, assessing motivational climate

The issue of maximizing motivation has long been of interest in the athletic domain. A concern with who and what optimally motivate sport participants has spurred a plethora of research and theoretical models related to this topic. The theoretical framework used in the present study stems from the education-based work of Nicholls (1984, 1989), Dweck (Dweck, 1986; Elliott & Dweck, 1988), and Ames (Ames, 1984, 1992; Ames & Archer, 1988). In general, these theorists assume that the primary focus of individuals in achievement situations is to demonstrate competence. Furthermore, it is argued that perceptions of goal attainment evolve from how individuals perceive the causes of achievement outcomes and construe their levels of ability (Maehr & Nicholls, 1980; Nicholls, 1989).

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Nicholls (1984) argues that individuals in achievement situations predominantly operate under two different goal perspectives (i.e., task involvement and ego involvement) and that they will view their conceptions of ability in dissimilar manners when they have adopted one goal perspective over the other. When a person is task involved, perceptions of ability are related to self-referenced standards. An athlete who is task involved will judge his or her level of ability according to how much he or she has learned or improved progressively. In a state of task involvement, the more effort needed to master a skill, the higher an individual perceives his or her ability to be when succeeding on that task.

Oppositely, when ego involvement prevails, level of ability is construed with reference to the performances of others. To perceive high ability, in this case, one must perform better than others on a particular task. If one's performance is subpar compared to others, then perceptions of low ability will result, assuming comparable effort is given.

Contemporary goal perspective theories suggest that behavioral variation in achievement contexts is a function of the interplay between goals and perceptions of ability. In brief, it is predicted that an adaptive achievement pattern will be observed among individuals who are ego involved as long as their perceived abilities are high, *or* among those who are task involved regardless of their levels of competence. Ego-oriented individuals with low levels of perceived ability, however, are assumed to exhibit negative, nonadaptive achievement-related behaviors. Two psychological explanations for such differential behavioral patterns have been provided in the educational literature, namely that goal perspectives are associated with people's intrinsic interests in activities as well as views concerning the causes of achievement.

Recent goal perspective theories of achievement motivation predict that task involvement fosters intrinsic motivation. In contrast, an ego-involving perspective is assumed to lead to reductions in intrinsic interest (Butler, 1987; Duda, Chi, Newton, Walling, & Catley, in press; Nicholls, 1989). Focusing on a task for its own sake, having a sense of self-determination, and perceiving oneself as able to meet the demands of a task are all assumed to be fundamental to intrinsic motivation (Deci & Ryan, 1980; Ryan, 1982). It is argued that experiencing intrinsic rewards may be more difficult for people who are ego involved because the focus is on obtaining normatively successful outcomes. Such a focus reduces the possibility that a person will perceive himself or herself to be competent and in control. Further, when a person is in a state of ego involvement, the task at hand is viewed as a means to an end, namely the demonstration of superior ability. In contrast, individuals adopting a task orientation see success through the use of effort as pleasurable and the goal of participating in a challenging task as an end in itself. Moreover, when task involved, people are less likely to feel incompetent because perceptions of ability are self-referenced.

In regard to beliefs about the causes of achievement, classroom-based and sport studies have found task-oriented individuals to be more likely to perceive that success primarily stems from exerted effort. In contrast, ego-oriented individuals tend to believe that success is a result of the possession of high ability (Duda, Fox, Biddle, & Armstrong, 1992; Duda & Nicholls, 1992a; Duda & White, 1992; Hom, Duda, & Miller, 1991; Nicholls, Cheung, Lauer, & Patashnick, 1989; Nicholls, Cobb, Wood, Yackel, & Patashnick, 1990; Nicholls, Patashnick, & Nolen, 1985).

Existing work on goal perspectives suggests that whether one is in a state of task or ego involvement is a function of dispositional differences and situational factors (Ames, 1984, 1992; Nicholls, 1989). To date, most of the sport research on goal perspectives has investigated individual differences in task and ego orientation and their cognitive, affective, and behavioral correlates. (See Duda, 1989a, 1992, in press, for an extensive review of this literature.) The role of athletes' perceptions of the situationally induced goal perspectives operating in sport on motivational variables has not been addressed.

The majority of research on situational factors has emphasized how the motivational climate or existing goal structure in the classroom relates to students' perceptions and behaviors. Motivational climate or situational goal structure is assumed to be a function of the goals to be achieved, the evaluation and reward process, and how individuals are requested to relate to each other in a particular setting (Ames & Archer, 1988). Specifically, emphasis has been placed on the motivational implications of competitive (or ego-involving) versus individualistic (or task-involving) goal structures.

Initial work suggests that the prevailing goal structure that a student perceives to be operating in the classroom influences attributional focus and intrinsic interest (Ames, 1984, 1992; Ames & Archer, 1988). Ames and Archer (1988), for example, investigated the relationship of perceived motivational climate on motivational processes in high school classrooms. In particular, students' perceptions of classroom goal structure were assessed in relation to task choice, attitudes about school, and attributions for success and failure. Students who perceived a mastery-oriented structure operating in their classrooms were more likely to use effective learning strategies, opt for challenging tasks, have positive attitudes toward their classes, and perceive effort as the primary reason for success. Those students perceiving a performance-oriented structure tended to make ability attributions for performance and to perceive their levels of ability to be low when experiencing failure.

The present study attempted to replicate and extend the work just described by developing a sport-specific measure of perceived motivational climate and examining the relationship of this construct to intrinsic motivation and beliefs about the causes of success in the athletic domain. Secondly, this study examined the degree to which intrinsic motivation and beliefs about the causes of success are predicted by perceptions of the situational goal structure, dispositional goal perspective, or both factors.

Method

Subjects and Procedures

The subjects in this study were 105 male basketball players recruited from nine high school varsity basketball teams in the Midwest. The teams varied in terms of win-loss record with a minimum winning percentage of 20% (2-8) and a maximum of 83% (10-2). The athletes were predominantly white (88%) with an average age of 16.5 years (range was 14-19 years old).

After receiving permission from coaches and, when necessary, the athletic director associated with each team, we administered a multisection questionnaire to the athletes in a group setting prior to a practice session. Participation in the

study was voluntary and informed consent was secured. Subjects were encouraged to ask questions while completing the questionnaire and to answer the items honestly, given that all responses would be anonymous. Questionnaires were administered at approximately the halfway mark of the teams' seasons to ensure that the motivational climate had been established.

Measures

Perceived Motivational Climate in Sport. An initial pool of 106 items were generated from (reworded) relevant items contained in the Classroom Achievement Goals Questionnaire (Ames & Archer, 1988) or developed by the investigators. The items were designed to assess players' perceptions of the degree to which their teams' motivational climates were characterized by an emphasis on mastery and performance goals. The face validity of each item was evaluated by a panel of eight experts in terms of whether the item referred to a performance or mastery goal and how well the item reflected a mastery or performance goal in the context of sport (on a 5-point Likert-type scale). An item was retained if there was 100% agreement among the judges with respect to its classification and if there was a mean of 4.0 or greater on the rating of the quality of the item. Forty items met these criteria.

When completing the 40-item Perceived Motivational Climate in Sport Questionnaire, players were asked to think of what it was like playing on their particular teams over the course of the season. The stem for each item was "On this basketball team . . ." and responses were indicated on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). The 40 items (and observed means and standard deviations) are presented in Table 1.¹

Intrinsic Motivation. Players were requested to respond to the Intrinsic Motivation Inventory (IMI), which assesses specific components of intrinsic motivation as well as indicates overall levels of intrinsic interest (Ryan, 1982). In this study, the IMI was reworded so that subjects would specifically refer to the context of interscholastic basketball when completing the instrument. The IMI contains four subscales including Interest/Enjoyment (e.g., "I enjoy participating on this basketball team very much."), Perceived Competence (e.g., "I think I am pretty good at basketball."), Effort/Importance (e.g., "I try very hard on this basketball team."), and Pressure/Tension (e.g., "I do not feel very relaxed while participating on this basketball team."). In the physical domain, each of the subscales has demonstrated adequate internal consistency and the overall scale has been found to be high in internal reliability (McAuley, Duncan, & Tammen, 1989). In the present study, these four subscales and the composite IMI scale also were found to possess acceptable internal consistency ($\alpha = .83, .81, .83, .63,$ and $.80$ respectively).

Beliefs About the Causes of Success. Twelve items assessing the perceived causes of success and failure in basketball were included in the questionnaire. This section comprised two subscales (Effort and Ability Beliefs), which were adapted from previous work by Nicholls and his colleagues (Duda & Nicholls, 1992a; Nicholls et al., 1985, 1989). The subscales assess the degree to which individuals feel that success in sport stems from ability or motivation/exerted effort. Players were asked, "What do you think is most likely to help players do well or succeed on this basketball team?" To maintain the focus on causes of basketball success in general as opposed to individual attributional beliefs

Table 1 — Means and Standard Deviations for 40 Items Contained in Original Version of the Perceived Motivational Climate in Sport Questionnaire

	Performance climate		Mastery climate		M	SD
On this basketball team . . .						
Players feel good when they do better than their teammates in a game	2.98	.99			3.02	.90
Players are punished when they make a mistake	3.12	1.10			3.82	.89
The coach feels good about us only when we beat the other team	2.13	.94			3.52	1.04
The only thing that matters is winning	2.35	1.08			3.73	1.03
The only way players get playing time is if they have talent	2.58	1.14			4.46	.71
Players are taken out of the game for mistakes	3.68	.90			3.58	.97
Playing better than teammates is important	2.64	.98			4.40	.59
Coach gives most of his attention to the "stars"	3.01	1.25			3.75	.88
Doing better than others is important	2.90	1.01			3.34	.99
Teammates compete against each other for playing time	4.00	.89			2.82	1.00
The coach favors some players over others	3.54	1.11			3.32	.85
Players are encouraged to outplay their own teammates	3.29	1.11			2.76	1.05
Everyone wants to be the high scorer	2.79	1.01			4.12	.79
The most important thing is the final score	2.73	1.11			3.43	1.05
Being "number one" is what counts	2.46	1.08			2.70	.94
It is important to show the coach that you are better than the rest	3.03	1.05			3.46	.85
Players always want to know everyone else's game "stats"	3.26	1.00			3.96	.85
Only the top players "get noticed" by the coach	2.77	1.07			4.14	.91
Players are afraid to make mistakes	3.35	1.17			2.94	1.14
Only a few players can be "stars"	3.07	1.16			3.20	.84
Players often do extra work after practice because they want to improve on their skills						
Trying hard is rewarded						
The coach makes sure players improve on skills they're not good at						
Coach is happy as long as we try hard						
The focus is to improve each game						
Players are rewarded when they have worked hard						
It's important to keep trying even though you make mistakes						
Even if we lose, coach feels good about us when we play well						
The most important thing is how you play the game (not winning or losing)						
The coach tries to find out what skill each player wants to improve on						
Players work hard because they want to learn new things about basketball						
As long as players try hard, they won't get yelled at						
Players are encouraged to work on their weaknesses						
Everyone feels like he has an important role on the team						
Players sometimes get to choose the skills they want/need to work on						
The coach wants us to try new skills						
Mistakes are part of learning						
Players like playing against good teams						
Most of the players get to play in the games						
Coach wants us to learn how to solve problems on our own						

concerning personal performance outcomes, we used a stem for each item: "Players succeed if . . ." Responses to items were rated on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Both the Motivation/Effort and Ability Belief subscales demonstrated acceptable internal consistency ($\alpha = .81$ and $.70$, respectively) in the present study.

Task and Ego Orientation in Sport. Subjects completed the 13-item Task and Ego Orientation in Sport Questionnaire (TEOSQ), which was developed by Duda and Nicholls (1992b; Duda, 1989b, 1992). The TEOSQ measures individual differences in the proneness for task and ego involvement in the athletic context. When completing the TEOSQ, subjects were asked to think of when they felt most successful in basketball specifically. Evidence for the reliability and validity of the TEOSQ has been provided in previous sport studies (e.g., Duda, 1989b, 1992; Duda & Nicholls, 1992b; Duda, Olson, & Templin, 1991). Both subscales demonstrated adequate internal consistency in the present research, α (task) = $.72$, α (ego) = $.84$.

Results

Psychometric Development and Characteristics of Climate Questionnaire

Exploratory factor analyses (principal components analysis with both oblique and varimax rotations) without specification of the number of factors were performed on the 40-item version of the Perceived Motivational Climate in Sport Questionnaire. Although both rotations revealed two predominant factors, 12 factors emerged with eigenvalues greater than one. Items with a loading greater than $.40$ were considered to load on particular factors. On the basis of these initial factor analyses, a two-factor solution was supported and only 21 items were retained. After the first two factors, there was a marked decrease in the eigenvalues and variance accounted for by the adjacent 10 factors. Further, only one or two items loaded on each of these latter factors and many of these items loaded on more than one factor. Other selection criteria were examined such as an inspection of the scree plot of eigenvalues and the change in average root mean square off-diagonal residual correlations across factors. Moreover, the two prevailing factors (i.e., Factors 1 and 2) were conceptually consistent with previous classroom work on the measurement of situational goal structure as well as the theoretical constructs of interest (Ames & Archer, 1988). In sum, all of these considerations provided converging evidence for a two-factor solution (and the retention of 21 items).

The 21-item version of the Perceived Motivational Climate in Sport Questionnaire was subjected to a second factor analysis (with both oblique and varimax rotations and the number of factors not specified). The two factor solutions that emerged were similar. Table 2 displays the 12 items that loaded on the performance factor (factor loading $>.40$) and the 9 items that loaded on the mastery factor.

The internal consistency of the Perceived Motivational Climate in Sport Questionnaire subscales was determined via the calculation of coefficient alpha (Cronbach, 1951). Both the Performance and Mastery subscales demonstrated acceptable internal consistency (α coefficient = $.84$ and $.80$, respectively). Based on the results of the factor and internal consistency analyses, scale scores

Table 2
Factor Analysis of Perceived Motivational Climate in Sport Questionnaire (varimax rotation)

	Performance factor	Mastery factor
<i>On this basketball team . . .</i>		
Players feel good when they do better than teammates	.51	-.07
Players are punished for mistakes	.42	-.18
Players are taken out for mistakes	.58	-.18
Out-playing teammates is important	.68	.22
Coach pays most attention to the "stars"	.67	-.36
Doing better than others is important	.68	.02
The coach favors some players	.73	-.14
Players are encouraged to outplay teammates	.42	-.16
Everyone wants to be the high scorer	.58	.08
Only the top players "get noticed"	.64	-.38
Players are afraid to make mistakes	.60	-.24
Only a few players can be the "stars"	.60	-.03
Trying hard is rewarded	-.23	.49
The coach focuses on skill improvement	-.06	.71
Each player's improvement is important	-.16	.63
Players try to learn new skills	-.03	.60
Players are encouraged to work on weaknesses	-.10	.72
The coach wants us to try new skills	-.12	.64
Players like playing good teams	.12	.55
All players have an important role	-.31	.48
Most players get to play in the games	-.20	.52
Eigenvalue:	5.71	2.64
Percent of variance:	27.20	12.50

were calculated (sum of responses on each of the respective items) for both the Mastery and Performance Climate subscales.

Team Effects. To address the issue of whether teams vary in relation to the motivational variables examined in this study and especially in their perceptions of motivational climate, analysis of variance was employed with team as the independent variable. A significant difference between teams emerged in perceptions of a mastery-oriented climate, $F(8,94) = 4.19$; $p < .001$. Tukey's Studentized Range (HSD) Post-Hoc Tests indicated that Teams 5 and 6 perceived their environments to be more mastery-oriented than Teams 1 and 3 (see Table 3). A significant difference also emerged between teams with respect to perceptions of a performance-oriented climate, $F(8,94) = 4.52$; $p < .001$. Post-hoc tests revealed that players on Team 1 perceived their environment to be more performance-oriented than players on Teams 2, 4, 6, and 9. No significant team differences in the other variables of interest emerged (indices of intrinsic motivation, beliefs about the causes of success, and dispositional goal orientation).

Table 3
Means and Standard Deviations for Perceived Motivational Climate in Sport Questionnaire Subscales by Team

Team	Motivational climate			
	Mastery		Performance	
	Mean	SD	Mean	SD
1	27.1 ^{a,c}	5.8	45.1 ^{a,b,c,d}	4.3
2	31.3	5.0	33.4 ^a	6.7
3	28.3 ^{b,d}	4.9	40.2	5.9
4	32.6	5.3	33.7 ^b	6.7
5	35.5 ^{a,b}	3.7	38.5	9.3
6	35.1 ^{c,d}	4.1	35.0 ^c	6.4
7	30.2	4.2	37.4	8.8
8	33.1	3.7	40.4	7.3
9	32.8	4.8	31.0 ^d	7.5
All teams	31.8	2.9	37.2	4.4

^{a,b,c,d}Indicate pairs of significantly different team mean values.

Before collapsing across team membership in the subsequent analyses, we conducted preliminary analyses to check for equality of variance-covariance matrices across teams. Box M test was used, which has an approximate F distribution. The test was conducted for a subset of variables relevant to each hypothesis. A small alpha level (.005) was used because the test is highly sensitive to multivariate normality. In each case the hypothesis of the equality of the variance-covariance matrices was not rejected. These results justify pooling the teams in further analyses focused on the relationship of perceived motivational climate to intrinsic motivation and beliefs about success.

Relationship of Climate to Intrinsic Motivation, Beliefs, and Goals

To examine the effect of perceptions of motivational climate on indices of intrinsic motivation, we divided subjects into groups based on their scores on the Mastery and Performance subscales. Subjects with above-median scores on the Mastery Climate subscale were categorized as a high mastery-oriented group ($n = 49$). Individuals scoring below the median on the Mastery Climate subscale were classified as a low mastery-oriented group ($n = 42$). Additionally, subjects scoring above the median on the Performance subscale and below the median on the Performance subscale were classified as a high-performance group ($n = 44$) and a low-performance group ($n = 41$), respectively. A 2×2 ANOVA was conducted with two levels of mastery-oriented climate (high and low) and two levels of performance-oriented climate (high and low) as the independent variables and with the IMI subscales and composite score as the dependent variables. The cell sizes in this 2×2 design were as follows: high mastery/high performance ($n = 15$), high mastery/low performance ($n = 34$), low mastery/high performance ($n = 29$), and low mastery/low performance ($n = 13$).

A main effect for perceptions of a mastery-oriented climate on reported enjoyment of basketball was revealed. Athletes who perceived their basketball environments to be strongly mastery-oriented reported significantly higher levels of enjoyment ($M = 25.6$) compared to the athletes who perceived their team climates to be low in mastery orientation ($M = 21.2$), $F(1,89) = 24.45$; $p < .001$. A main effect for perceptions of a mastery-oriented climate on the total Intrinsic Motivation Inventory (IMI) score also emerged, $F(1,86) = 13.96$; $p < .001$. Specifically, basketball players perceiving predominantly mastery-oriented motivational climates had higher intrinsic motivation ($M = 73.1$) than basketball players who viewed their team climates as being low in mastery orientation ($M = 68.2$). There were no significant main effects for perceptions of a performance-oriented climate on any of the indices of intrinsic interest. Further, no significant interactions emerged.

Canonical correlation analysis was employed to determine the multivariate relationship of perceived mastery- and performance-oriented climate to the four intrinsic motivation subscales. One significant function emerged (Wilks's lambda = .75, $p < .001$, canonical correlation squared = .23). An examination of the standardized canonical loadings revealed that high perceptions of a mastery-oriented climate corresponded to higher levels of perceived enjoyment in basketball. Table 4 presents the standardized canonical coefficients for the measures of perceived motivational climate and the subscales of the Intrinsic Motivation Inventory. Canonical redundancy analysis indicated that 15.1% of the variance in IMI subscale scores was explained by the perceived mastery-oriented climate and performance-oriented climate measures.

Beliefs About the Causes of Success. A 2×2 ANOVA indicated that basketball players who were high in perceptions of a mastery-oriented climate were significantly more likely to believe that high effort leads to success in their sport ($M = 29.0$) than players who perceived their teams to be less mastery oriented ($M = 26.9$), $F(1,90) = 4.90$; $p < .05$. There was a significant main effect for perceptions of a performance-oriented climate on the belief that ability is most likely to help players be successful in basketball. Those subjects high in perceptions of a performance-oriented climate tended to endorse the belief that ability leads to success ($M = 9.5$), $F(1,90) = 3.92$; $p < .05$, when compared to subjects low in perceptions of a performance-oriented climate ($M = 8.4$). No other significant main effects or interaction effects emerged.

Table 4
Standardized Canonical Coefficients for Motivational Climate and Dimensions of Intrinsic Motivation

Motivational climate	Standardized canonical coefficient
Mastery climate	.82
Performance climate	-.33
Intrinsic motivation inventory	
Enjoyment-interest	1.05
Effort	-.24
Competence	-.22
Tension	-.08

A canonical correlation analysis was employed to examine the multivariate relationship between perceptions of motivational climate and views about what leads to success among basketball players. No significant functions emerged between motivational climate (i.e., mastery- and performance-oriented) and beliefs about the causes of success.

Task and Ego Orientation. Simple correlations were calculated to determine the degree of relationship between dispositional goal orientation and the two perceived motivational climate subscales. Perceptions of a mastery-oriented climate were found to be minimally and positively related to task orientation ($r = .29, p < .01$) and negatively correlated with ego orientation ($r = -.13, p > .05$). Perceptions of a performance-oriented climate were significantly correlated with ego orientation ($r = .28, p < .01$). A significant and negative correlation emerged between task orientation and scores on the Performance Climate subscale ($r = -.23, p < .05$).

Perceived Motivational Climate and Dispositions

In order to determine whether indices of intrinsic motivation and beliefs about the causes of success were best predicted by perceptions of motivational climate (i.e., mastery- and performance-oriented), dispositional goal orientation (i.e., task and ego orientation), or both, we performed a series of hierarchical stepwise regressions. In the first analysis, motivational climate (mastery and performance) was entered in Step 1 of the regression equation and dispositional goal orientation (task and ego) in Step 2. A subsequent hierarchical stepwise procedure entered dispositional goal orientation in Step 1 and motivational climate in Step 2.

Intrinsic Motivation. As shown in Table 5, dispositional goal orientation (mainly task orientation) emerged as the primary predictor of enjoyment, significantly adding to the total amount of variance regardless of the order of entry into the regression equation. Perceptions of motivational climate also accounted for a significant proportion of the variance in enjoyment experienced in basketball.

The results indicated that dispositional goal orientation (mainly task orientation) was the predominant predictor of reported effort exerted and perceived competence in basketball (see Table 5). However, motivational climate (mainly perceptions of a performance-oriented climate) significantly predicted reported tension in basketball.

Beliefs About the Causes of Success. The results of the hierarchical stepwise regression analyses, in which beliefs about the causes of success (effort and ability) were the dependent variables, are presented in Table 6. In each case, the dispositional factors emerged as the only significant predictors. Task orientation, in particular, was the only significant predictor of the belief that effort causes success, whereas only ego orientation significantly predicted the belief that ability causes success.

Discussion

The adopted goal perspective in achievement situations is presumed to be dependent on individual differences in proneness to task and ego involvement as well as the situational goal structure at hand. An assessment of dispositional goal perspective (or task and ego orientation) in sport has previously been established

Table 5
Percentage of Variance Accounted for in Indices
of Intrinsic Motivation as Revealed
Through Hierarchical Stepwise Multiple Regression

Step	Variable	Beta	RsqCh	RsqCum	F value	Prob.
IMI subscale—Enjoyment						
1	Performance	-.15				
	Mastery	.21	.23	.23	13.48	.001
	Ego orientation	-.07				
2	Task orientation	.52	.25	.48	21.53	.001
	Ego orientation	-.07				
1	Task orientation	.52	.39	.39	29.68	.001
	Performance	-.15				
2	Mastery	.52	.09	.48	7.30	.001
IMI subscale—Exerted effort						
1	Performance	-.12				
	Mastery	.05	.07	.07	3.32	.05
	Ego orientation	-.02				
2	Task orientation	.42	.16	.23	9.41	.001
	Ego orientation	-.02				
1	Task orientation	.42	.21	.21	12.10	.001
	Performance	-.12				
2	Mastery	.05	.02	.23	1.19	n.s.
IMI subscale—Competence						
1	Performance	.17				
	Mastery	.01	.03	.03	1.22	n.s.
	Ego orientation	.06				
2	Task orientation	.32	.09	.12	4.83	.01
	Ego orientation	.06				
1	Task orientation	.32	.09	.09	4.77	.01
	Performance	.17				
2	Mastery	.01	.03	.12	1.34	n.s.
IMI subscale—Tension						
1	Performance	-.37				
	Mastery	-.02	.15	.15	8.01	.001
	Ego orientation	-.40				
2	Task orientation	.15	.02	.17	1.13	n.s.
	Ego orientation	-.40				
1	Task orientation	.15	.04	.04	2.10	n.s.
	Performance	-.37				
2	Mastery	-.02	.13	.17	6.79	.01

Table 6

Percentage of Variance Accounted for in Beliefs About the Causes of Success as Revealed Through Hierarchical Stepwise Multiple Regression

Step	Variable	Beta	RsqCh	RsqCum	F value	Prob.
Effort belief						
1	Performance	.03				
	Mastery	.09	.04	.04	1.83	n.s.
2	Ego orientation	-.19				
	Task orientation	.26	.10	.14	4.98	.01
1	Ego orientation	-.19				
	Task orientation	.26	.13	.13	6.77	.01
2	Performance	.03				
	Mastery	.09	.01	.14	.30	n.s.
Ability belief						
1	Performance	.18				
	Mastery	.12	.04	.04	2.01	n.s.
2	Ego orientation	.24				
	Task orientation	-.08	.06	.10	2.93	n.s.
1	Ego orientation	.24				
	Task orientation	-.08	.07	.07	3.55	.05
2	Performance	.18				
	Mastery	.12	.03	.10	1.51	n.s.

in the literature (Duda, 1989b, 1992; Duda et al., 1991). There was a need, however, for a measure of perceptions of the predominant goal structure in the athletic domain. The present study entailed the development of the Perceived Motivational Climate in Sport Questionnaire. Although more work is needed on its psychometric characteristics, the present findings provide preliminary evidence for the validity and reliability of this measure.

Motivational Climate and Intrinsic Motivation

Aligned with the predictions of contemporary goal perspective theories of achievement behavior, a finding that a perceived mastery-oriented climate would correspond with greater intrinsic interest in basketball was expected. Perceptions of a performance-oriented climate, in contrast, were assumed to be negatively associated with indices of intrinsic motivation. Results indicated that perceptions of a mastery-oriented climate significantly and positively related to reported enjoyment and the total composite score on the Intrinsic Motivation Inventory. Thus, players who perceived team climates that were characterized by a focus on personal improvement, trying one's best, and maximal participation enjoyed playing basketball more. Moreover, the nonsignificant main effect for level of performance-oriented climate (and nonsignificant interaction) on intrinsic motivation scores suggests that the benefits of a mastery-oriented environment can occur

as easily in a high performance-focused goal structure as in a low performance-focused goal structure.

These results are compatible with previous classroom-based research on the correlates of motivational climate (Ames, 1984, 1992). It has been suggested that a mastery-oriented climate (in contrast to a performance-oriented situation) is more conducive to people feeling competent and personally successful, because determinants of achievement are self-referenced and interpersonal competition is minimized. Further, individuals operating in a mastery-focused environment are more likely to concentrate on the performance processes that are more within their personal control rather than on the outcome of sport contests. As suggested in the work of Deci and Ryan (1980), when people experience more meaningful personal success and feel more competent and self-determined, the probability of obtaining higher levels of enjoyment is increased.

The potential motivation-related implications of these findings should be tempered, however, given that the percentage of variance in indices of intrinsic motivation explained by perceived motivational climate scores was low (i.e., less than 17%). Thus, other situational and personal factors must also influence athletes' intrinsic interest and investment in sport.

Motivational Climate and Attributional Beliefs

Theoretically, it was also expected that players perceiving pronounced mastery-oriented climates would display stronger attributional focuses on effort than players perceiving low mastery-oriented climates. Consistent with the classroom research of Ames and Archer (1988), this relationship held regardless of the players' perceptions of the performance focus of the team climate. When behaviors that coincide with a mastery-oriented climate were perceived to be reinforced on a team (e.g., trying hard, personal improvement), players tended to believe that applying effort was more likely to help them reach success in basketball.

In contrast, perceptions of a performance-oriented climate were predicted to positively relate to the belief that ability causes success. Support for this prediction also emerged in the present results. In essence, when a team motivational climate was perceived to emphasize competing with teammates, being a "star," and facing negative consequences for mistakes, players tended to believe that high ability would lead to basketball achievement when compared to teams not characterized by such an emphasis.

Nicholls (1989) argues that the differences in attributional beliefs associated with situational goal structure have important motivational ramifications. Clearly, it is much more adaptive for an interscholastic-level athlete to believe that hard work and practice will help him or her progress and do well in sport. Perceiving that success primarily stems from the possession of high ability, on the other hand, can lead athletes to rescind effort or give up—particularly athletes who have questions about their competence.

Situational Versus Dispositional Goal Perspectives

Dispositional goal orientation emerged as the primary predictor of enjoyment in basketball; however, perceived motivational climate also significantly contributed to players' reported enjoyment. These results suggest that if players

are dispositionally task oriented and perceive the team atmosphere to be characterized as a mastery-oriented climate, the probability of their enjoying participation in basketball is particularly enhanced. These chances may be reduced, however, if a player has low perceptions of a mastery-oriented climate (Ames & Archer 1988). Thus, although some athletes are more likely to find sport enjoyable due to the ways they define success, the motivational atmosphere created by the coach also seems to influence the degree of positive affect experienced in the athletic context.

The results revealed that dispositional goal orientation was the only significant predictor of players' self-reported exerted effort, perceived competence, and attributional beliefs in basketball. Variations in motivational climate did not significantly relate to these measures once individual differences in goal perspective were taken into consideration. This finding seems intuitive given that beliefs, perceptions of how hard one tries, and perceived competence reflect more dispositional or behavioral/cognitive tendencies in the sport of basketball and, consequently, should best be predicted by players' dispositional proneness in defining basketball success. Over time, however, perceptions of the motivational climate may have increasing influence on reported exerted effort, perceptions of ability/competence, and views about what leads to achievement in basketball. Initial work by Nicholls and his colleagues in the classroom supports this contention (Nicholls et al., 1989).

In contrast, perceptions of motivational climate (mainly performance oriented) were the most significant predictor of players' perceptions of the degree of tension experienced while playing basketball. That is, greater anxiety was reported when players perceived motivational climates that were characterized by team competition, negative repercussions for mistakes, and limited reinforcement. Although the percent of variance accounted for in tension scores was minimal, this result is consistent with previous research on motivation in classroom and sport settings (Duda & Nicholls, 1992a). It is suggested that affective responses such as anxiety are more heavily influenced by situational factors (e.g., the motivational climate) and are less stable across situations than certain dispositional achievement dimensions (e.g., beliefs about the causes of success) that appear to be more consistent across contexts. In other words, it has been noted that how one views achievement situations tends to generalize across settings, but how one actually experiences an achievement-related environment may shift according to perceptions of motivational climate.

The relationship between perceived motivational climate and dispositional goal orientation has not been examined in previous classroom or sport research. In the present study, players who perceived mastery-oriented environments tended to be dispositionally task oriented, but this relationship was modest. There was a slight positive association between perceptions of a performance-oriented climate and ego orientation. Thus, perceived motivational climate and dispositional goal orientation appear to be two different dimensions of motivation in sport activities. The interdependencies between these two dimensions is probably complex and dynamic. It has been suggested that increasing exposure to certain motivational climates may shape one's dispositional goal perspective (Ames, 1992; Nicholls, 1989). There is a need for studies that examine the interplay between perceived motivational climate and dispositional goal orientations over time.

Future Research

Building on the present study, research needs to further determine the psychometric characteristics of the Perceived Motivational Climate in Sport Questionnaire. Information on the instrument's test-retest reliability and more evidence concerning its construct validity need to be accrued. With respect to the latter, research could examine the associations between the perceived motivational climate scores of athletes and ratings of perceived motivational climate by impartial observers.

In general, research concerning the relationship of perceived motivational climate to important motivational constructs in sport is currently in the preliminary stages. Because perceived situational goal structure is not unidimensional, additional work is needed to determine which dimensions of a motivational climate are more salient and critical than others. In terms of this issue, it would be interesting to ascertain how a team's situational goal structure relates to the larger organizational climate (e.g., student body, athletic department, tradition of program).

Replications of the present study in basketball and other sports as well among teams playing at different competitive levels (e.g., youth sport, intercollegiate) are warranted. Further, investigations that extend the present research and examine the interdependencies between perceived motivational climate and resulting behavior (e.g., both self-reported and actual behavioral patterns) would make an important contribution to the sport motivation literature. Finally, to establish cause-and-effect relationships, researchers should conduct experimental work that entails manipulating situational goal structure and determining its impact on cognitions, affect, and behavior in sport (Ames, 1992).

References

- Ames, C. (1984). Competitive, cooperative and individualistic goal structures: A motivational analysis. In R. Ames & C. Ames (Eds.), *Research on motivation in education: Student motivation* (pp. 177-207). New York: Academic Press.
- Ames, C. (1992). Achievement goals, motivational climate, and motivational processes. In G. Roberts (Ed.), *Motivation in sport and exercise* (pp. 161-176). Champaign, IL: Human Kinetics.
- Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology*, *80*, 260-267.
- Butler, R. (1987). Task-involving and ego-involving properties of evaluation: The effects of different feedback conditions on motivational perceptions, interest and performance. *Journal of Educational Psychology*, *79*, 474-482.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*, 297-334.
- Deci, E.L., & Ryan, R.M. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 13). New York: Academic Press.
- Duda, J.L. (1989a). Goal perspectives and behavior in sport and exercise settings. In C. Ames & M. Maehr (Eds.), *Advances in motivation and achievement* (Vol. 6, pp. 81-115). Greenwich, CT: JAI Press.

- Duda, J.L. (1989b). The relationship between task and ego orientation and the perceived purpose of sport among male and female high school athletes. *Journal of Sport and Exercise Psychology*, **11**, 318-335.
- Duda, J.L. (1992). Motivation in sport settings: A goal perspective approach. In G. Roberts (Ed.), *Motivation in sport and exercise* (pp. 57-91). Champaign, IL: Human Kinetics.
- Duda, J.L. (in press). Goals: A social cognitive approach to achievement motivation in sport. In R. Singer, M. Murphy, & L.K. Tennant (Eds.), *Handbook on research in sport psychology*. New York: Macmillan.
- Duda, J.L., Chi, L., Newton, M., Walling, M., & Catley, D. (in press). Task and ego orientation and intrinsic motivation in sport. *International Journal of Sport Psychology*.
- Duda, J.L., Fox, K.R., Biddle, S.J.H., & Armstrong, N. (1992). Children's achievement goals and belief about success in sport. *British Journal of Educational Psychology*, **62**, 309-319.
- Duda, J.L. & Nicholls, J.G. (1992a). Dimensions of achievement motivation in schoolwork and sport. *Journal of Educational Psychology*, **84**, 1-10.
- Duda, J.L., & Nicholls, J.G. (1992b). *Psychometric properties of the Task and Ego Orientation in Sport Questionnaire*. Unpublished manuscript.
- Duda, J.L., Olson, L.K., & Templin, T. (1991). The relationship of task and ego orientation to sportsmanship attitudes and the perceived legitimacy of aggressive acts. *Research Quarterly for Exercise and Sport*, **62**, 79-82.
- Duda, J.L., & White, S.A. (1992). Goal orientations and beliefs about the causes of sport success among elite skiers. *The Sport Psychologist*, **6**, 335-345.
- Dweck, C.S. (1986). Motivational processes affecting learning. *American Psychologist*, **41**, 1040-1048.
- Elliott, E.S., & Dweck, C.S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, **54**, 5-12.
- Hom, H.L., Duda, J.L., & Miller, A. (1991). *Goals, beliefs, and intrinsic interest among youth sport participants*. Manuscript submitted for publication.
- McAuley, E., Duncan, E., & Tammen, V.V. (1989). Psychometric properties of the Intrinsic Motivation Inventory in a competitive sport setting: A confirmatory factor analysis. *Research Quarterly for Exercise and Sport*, **60**, 48-58.
- Maehr, M.L., & Nicholls, J.G. (1980). Culture and achievement motivation: A second look. In N. Warren (Ed.), *Studies in cross-cultural psychology* (pp. 221-267). New York: Academic Press.
- Nicholls, J. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, **91**, 328-346.
- Nicholls, J.G. (1989). *The competitive ethos and democratic education*. Cambridge, MA: Harvard University Press.
- Nicholls, J.G., Cheung, P.C., Lauer, J., & Patashnick, M. (1989). Individual differences in academic motivation: Perceived ability, goals, beliefs, and values. *Learning and Individual Differences*, **1**, 63-84.
- Nicholls, J.G., Cobb, P., Wood, T., Yackel, E., & Patashnick, M. (1990). Assessing students' theories of success in mathematics: Individual and classroom differences. *Journal for Research in Mathematics Education*, **21**, 109-122.
- Nicholls, J.G., Patashnick, M., & Nolen, S.B. (1985). Adolescents' theories of education. *Journal of Educational Psychology*, **77**, 683-692.

- Ryan, R.M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology*, **43**, 450-461.

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Note

¹The intercorrelation matrix of the 40 items is available from the second author.

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