

# Coach-Initiated Motivational Climate and Cohesion in Youth Sport

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**Purpose:** The general purpose of the present study was to examine the link between cohesion and motivational climate in youth sport. The first specific objective was to determine if relationships demonstrated in previous research with adult basketball and handball participants would be replicated in a younger sample and with a more heterogeneous set of sports. The second specific objective was to examine whether sources of athlete enjoyment moderate the relationships between motivational climate and cohesion. **Method:** Athletes ( $N = 997$ ; 532 girls and 465 boys;  $M_{\text{age}} = 15.26 \pm 1.20$  years) completed measures pertaining to coach-initiated motivational climate, cohesion, and sources of enjoyment. **Results:** Bivariate and canonical correlations revealed positive correlations between perceptions of a task-involving motivational climate and both task and social cohesion, while ego-involving motivational climate was negatively related. Cluster analyses suggested that individuals perceiving a low task-involving climate and high ego-involving climate perceived their teams as less cohesive. Finally, the degree to which participants derived enjoyment through other-referenced competency served as a moderator in the motivational climate–task cohesion relationship. Specifically, the relationship between task cohesion and motivational climate was more pronounced for those individuals who were less likely to derive enjoyment through other-referenced competency. **Conclusions:** Youth athletes’ perceptions of coach-initiated motivational climate are related to cohesion. This relationship is, however, moderated by the degree to which athletes derive enjoyment through other-referenced competency. Motivational climate is an important variable to consider within team-building protocols intent on developing cohesion.

**Keywords:** adolescence, sport enjoyment, team

Involvement in group activities is very prevalent for youth sport participants. In fact, a 2009 report by the Canadian

Fitness and Lifestyle Research Institute summarized that more than 80% of participants between the ages of 15 and 17 years old were involved in team sports. It is also important to note that those activities typically viewed as “individual” in nature are actually taking place in a group environment (e.g., golf is often viewed as an individual sport but is usually played in groups of two to four people). When describing the connections within a group, an

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important concept to consider is cohesion, which is defined as “a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of instrumental objectives and/or for the satisfaction of member affective needs” (Carron, Brawley, & Widmeyer, 1998, p. 213).

In an adolescent population, Eys, Loughead, Bray, and Carron (2009) found cohesion to be differentiated based broadly on task (i.e., perceptions of unity surrounding the achievement of group objectives) and social concerns (i.e., perceptions of unity surrounding the group’s social relationships and activities). Overall, cohesion is positively associated with variables important to practitioners and researchers interested in sport and physical activity, including performance (e.g., Carron, Bray, & Eys, 2002) and adherence (e.g., Spink, Wilson, & Odnokon, 2010). Another important variable that has received attention in relation to cohesion is athletes’ perceptions of their motivational climate. The relationship between cohesion and motivational climate constitutes the general interest of the present study.

Motivational climate refers to “individuals’ composite views concerning the situationally emphasized goal structures operating in an achievement setting” (Duda, 2001, p. 144) and is rooted in achievement goal theory (Dweck, 1986; Nicholls, 1984), which has received comprehensive research attention during the past 30 years (for a recent review, see Senko, Hulleman, & Harackiewicz, 2011). Achievement goal theory suggests that both the individual’s unique achievement goal orientation (i.e., a dispositional variable) and situational cues (e.g., motivational climate) will influence social outcomes. For example, with respect to the former, Poortvliet and Darnon (2010) summarized that “mastery goals clearly lead to a variety of beneficial outcomes relative to performance goals, such as active efforts to integrate difference of opinions and build relationships and stronger endorsement of reciprocity norms” (p. 326).

As it pertains to achievement-oriented situational cues, motivational climate is proposed to have two dimensions within sport. The first is a task-involving climate, which pertains to the degree to which athletes perceive evaluation criteria to focus on individual progress, learning, and achievement (i.e., a focus on mastery goals). In contrast, evaluation criteria within an ego-involving climate center on the ability to demonstrate superiority over other athletes/teams (i.e., a focus on performance goals). Newton, Duda, and Yin (2000) further subdivided these two types of climates that, although not examined specifically in the present study, serve to illustrate the differences between coach-initiated task and ego environments. The task-involving structures include the degree to which coaches focus on effort, ensure the communication of role importance for each athlete, and encourage intrateam cooperation. Ego-involving structures include the degree to

which coaches focus on mistake-contingent punishment, differential treatment among teammates, and the encouragement of intrateam rivalry (Newton et al., 2000).

It is important to stress that the two manifestations of coach-initiated motivational climate entail a differential treatment of the group as a whole (i.e., promotion of cooperation vs. promotion of competition/rivalry). It is expected that situations that foster positive goal interdependence (i.e., greater cooperation as is characteristic of a task-involving climate) will yield more effective group and relational processes such as communication, friendliness, coordination, and feelings of similarity, while negative goal interdependence (i.e., greater competition as is characteristic of an ego-involving climate) hampers communication, helpfulness, and confidence, and promotes power differences (Deutsch, 2006). Thus, researchers have encouraged the examination of links between motivational climate and group perceptions such as cohesion (Duda, 2001; Harwood & Beauchamp, 2007).

In fact, in their model of coach leadership, Duda and Balaguer (1999) suggested a direct link between coach-initiated motivational climate and both task and social cohesion. Previous studies specifically examined the links between these two constructs. For example, Heuzé, Sarrazin, Masiero, Raimbault, and Thomas (2006) investigated the relationship between cohesion and coach-initiated motivational climate in women’s basketball and handball players. In particular, 124 French adult basketball and handball athletes completed the French versions of the Perceived Motivational Climate in Sport Questionnaire (PMCSQ) and Group Environment Questionnaire at two time periods. The results demonstrated that a task-involving climate positively predicted task cohesion, while an ego-involving climate negatively predicted dimensions of both task and social cohesion.

Overall, three points are offered with respect to the past literature related to coach-initiated motivational climate and group cohesion. First, there is theoretical and empirical support for the link between these two constructs (e.g., Duda & Balaguer, 1999; Heuzé et al., 2006). Second, investigations that have empirically examined this motivational climate–cohesion link were limited in scope with respect to sport type (i.e., basketball and handball) and demographic profile (i.e., elite adult samples). Finally, these studies undertook a descriptive examination of the relationships between the two constructs without considering other variables that might modify these relationships. In fact, Heuzé et al. (2006) suggested that “an interesting line of future research would be the investigation of possible mediators and/or moderators that might operate within the motivational climates-teams’ responses relationships” (p. 214).

As such, the specific objectives of the present study were twofold. The first objective was to determine if relationships demonstrated in previous research with adult basketball and

handball participants (e.g., Heuzé et al., 2006) would be replicated in a younger sample (i.e., youth aged 13 to 17 years old) with a more heterogeneous set of sports. Two sets of analyses were undertaken to be congruent with this past research, which included the examination of: (a) correlations between study variables (through bivariate and canonical correlations), and (b) athletes' "climate profiles" (i.e., classifying athletes based on responses to both task-involving and ego-involving motivational climate perceptions) in relation to cohesion. In the present study, the climate profiles were determined via cluster analyses. Cluster analysis is advantageous (in addition to canonical correlation analyses) because it permits the examination of individuals who are experiencing quite different combinations of motivational climate in their sport environment. For example, one individual may perceive his/her environment to be high in both mastery and ego-involving motivational cues, while another person may perceive a high mastery but low ego-involved climate. The examination of motivational climate through both analyses (canonical correlations and cluster analyses) will also offer some perspective on the debate as to whether some athletes simultaneously view their climate as highly task-involving and ego-involving (and/or simultaneously low in both; see the "Discussion" section for further information on this issue). Based on the extant literature with older sport participants, three hypotheses were generated with respect to this objective:

- Hypothesis 1 (H1): Perceptions of a task-involving motivational climate will be positively related to task cohesion.
- Hypothesis 2 (H2): Perceptions of an ego-involving motivational climate will be negatively related to both task and social cohesion.
- Hypothesis 3 (H3): Those individuals who are classified as perceiving a high task-involving and a low ego-involving motivational climate will have greater perceptions of cohesion than other identified groups.

The second objective was to examine whether sources of athlete enjoyment moderate the relationships between motivational climate and cohesion. In discussing the interaction between perceived motivational climate and individual achievement orientation (i.e., task vs. ego orientations), Ntoumanis and Biddle (1998) proposed a "matching hypothesis" whereby outcomes may be more positive when an individual's orientation matches his or her team's motivational climate. Although achievement orientations were not assessed in the present study, we propose a similar matching hypothesis between team motivational climate and athletes' sources of enjoyment, with sport enjoyment being defined by Scanlon and Simons (1992) as "a positive affective response to the sport experience that

reflects generalized feelings such as pleasure, liking, and fun" (pp. 202–203). In fact, two dimensions assessed through Wiersma's (2001) Sources of Enjoyment in Youth Sport Questionnaire closely align with task and ego achievement orientations: Enjoyment derived through (a) self-referenced competency (e.g., through playing up to one's potential) is similar to task-achievement orientation, and (b) other-referenced competency (e.g., demonstrating that one is better than others who play their sport) is similar to ego-achievement orientation. From a practical perspective, the analyses undertaken toward this objective tested the hypothesis that those individuals who derive greater enjoyment from an environment focused on self-referenced competency will be more sensitive to that group's climate (i.e., will demonstrate a stronger relationship between perceptions of motivational climate and cohesion). For example, an individual who derives enjoyment through opportunities to display self-referenced competency and who finds him or herself in an environment that fosters such opportunities may view his or her group in a particularly positive light and as being cooperative and cohesive. In contrast, if this same individual is participating in a group that fosters competition and rivalry, he or she may view the group as fractured and lacking in cohesion (especially in comparison with individuals who derive enjoyment from displays of other-referenced competency). As a point of clarification, the present study assessed athletes' perceptions of *how* their enjoyment is typically derived but not their actual level of enjoyment. Thus, two moderation hypotheses were generated:

- Hypothesis 4 (H4): The positive relationship between perceptions of task-involving motivational climate and cohesion will be amplified (i.e., stronger) for individuals who derive more enjoyment from self-referenced competency.
- Hypothesis 5 (H5): The negative relationship between perceptions of an ego-involving motivational climate and cohesion will be moderated (i.e., weakened) for individuals who derive more enjoyment through other-referenced competency.

## METHOD

### Participants

Participants ( $N = 997$ ) were recruited from four secondary schools within a Northern Ontario community (Canada) and ranged in age from 13 to 17 years old ( $M_{\text{age}} = 15.26$ ,  $SD = 1.20$  years). There were 532 girls and 465 boys from 34 different sports including interdependent activities (e.g., basketball, soccer) and independent activities (e.g., wrestling, skiing). The mean length of association with their current teams was 4.18 years ( $SD = 3.28$ ) and they had

participated in their sports for 6.04 years ( $SD = 3.78$ ) on average.

## Measures

### *Demographic Information*

Participants provided information pertaining to their age, grade, sex, school, type of sport, number of years in their present sport, name of their sport program, number of years in their present sport program, position, and starting status (i.e., starting player, substitute player, practice player).

### *Cohesion*

The Youth Sport Environment Questionnaire (YSEQ; Eys et al., 2009) is an 18-item inventory used to assess youth athletes' perceptions of cohesion. This inventory assesses task cohesion (8 items; e.g., "We all share the same commitment to our team's goals") and social cohesion (8 items; e.g., "We hang out with one another whenever possible"). Participants respond to each item on a Likert-type scale ranging from 1 (strongly disagree) to 9 (strongly agree). Therefore, higher scores on the YSEQ reflect stronger perceptions of cohesion. The final two items, phrased negatively, are utilized to identify response acquiescence on the part of participants but are not included in the calculation of dimension scores. Eys and colleagues (2009) provided evidence of the content and factorial validity of the questionnaire. In the present study, both task ( $\alpha = .89$ ) and social ( $\alpha = .93$ ) subscales demonstrated acceptable reliability coefficients.

### *Motivational Climate*

The Motivational Climate Scale for Youth Sport (MCSYS; Smith, Cumming, & Smoll, 2008) contains 12 items assessing youth athletes' perceptions of the coach-initiated task-involving (6 items; e.g., "The coach encouraged us to learn new skills") and ego-involving (6 items; e.g., "Winning games is the most important thing for the coach") motivational climate. Responses are rated on a Likert-type scale ranging from 1 (not at all true) to 5 (very true). In their article outlining the development of the MCSYS, Smith et al. (2008) found support for the factorial and construct validity of the questionnaire in addition to internal consistency and test-retest reliability. In the present study, task ( $\alpha = .82$ ) and ego ( $\alpha = .78$ ) subscales demonstrated acceptable reliability coefficients.

### *Sources of Enjoyment*

The Sources of Enjoyment in Youth Sport Questionnaire (Wiersma, 2001) contains 28 items that measure enjoyment sources on six dimensions: self-referenced competency, other-referenced competency and recognition, effort expenditure, competitive excitement, affiliation with peers, and

positive parental involvement. As previously mentioned, with respect to links with motivational climate, two dimensions were used in the present study: (a) self-referenced competency (4 items; e.g., "playing well compared to how I've played in the past"), and (b) other-referenced competency and recognition (6 items; e.g., "being better in my sport than other athletes my age or in my league"). Each statement is preceded by the stem "During the times when I most enjoy sport, I usually experience that enjoyment from . . .," and responses are given on a 5-point Likert-type scale that ranges from 1 (not at all) to 5 (very much). Wiersma (2001) provided evidence of the initial content and factorial validity as well as internal consistency of the dimensions. In the present study, self-referenced competency ( $\alpha = .78$ ) and other-referenced competency ( $\alpha = .83$ ) subscales demonstrated acceptable reliability coefficients.

## Procedure

Approval for the study was first garnered from the lead author's institutional research ethics board. A local school board was subsequently contacted and approval for the study was achieved, which was followed by contacting school principals to ask for permission to conduct the study within their specific educational setting. Letters of information and consent for both the students and parents were handed out prior to the data collection period. Those individuals who provided the requisite consent completed the questionnaires during a designated class period. The instructions allowed athletes to choose the sport in which they were most involved and to reflect on the experiences that occurred in that environment.

## RESULTS

### Preliminary Analyses and Descriptive Statistics

Prior to examining the relationships among the study variables, a series of preliminary analyses was conducted. Typical assumptions of multivariate analyses were tested. Analyses of normality (i.e., skewness, kurtosis), linearity, and multicollinearity revealed that these assumptions were met. Descriptive statistics for all study variables are reported in Table 1. Individual responses regarding perceptions of task cohesion and social cohesion ranged from 1 to 9 with subscale means of 6.60 and 5.92, respectively. Perceptions of task and ego coach-initiated motivational climate ranged from 1 to 5 with subscale means of 4.02 and 2.33, respectively. Finally, sources of enjoyment perceptions ranged from 1 to 5 with subscale means of 4.11 (self-referenced competency) and 3.53 (other-referenced competency).

TABLE 1  
Descriptive Statistics and Intercorrelations of Study Variables ( $N = 997$ )

Variable	Min	Max	M	SD	1	2	3	4	5	6
1. Task cohesion	1.13	9.00	6.60	1.43	–	.54	.45	–.18	.32	.11
2. Social cohesion	1.00	9.00	5.92	1.89		–	.23	.02	.24	.19
3. Task-involving MC	1.00	5.00	4.02	0.72			–	–.39	.35	.09
4. Ego-involving MC	1.00	5.00	2.33	0.85				–	–.11	.21
5. Self-referenced competency <sup>a</sup>	1.00	5.00	4.11	0.72					–	.45
6. Other-referenced competency <sup>a</sup>	1.00	5.00	3.53	0.92						–

Notes. MC = motivational climate.

<sup>a</sup>Sources of Enjoyment dimensions.

Bivariate correlations among the study variables are also found in Table 1. Low to moderate intercorrelations were found between each construct's subscales including cohesion (task vs. social,  $r = .54$ ), motivational climate (task vs. ego,  $r = -.39$ ), and sources of enjoyment (self-referenced competency vs. other-referenced competency,  $r = .45$ ).

### Relationships Between Motivational Climate and Cohesion (Tests of H1 and H2)

As noted in the "Introduction," one of the analysis strategies to examine the cohesion and motivational climate relationship in previous studies was to use simple bivariate correlations. In the present study (see Table 1), the results indicated positive correlations between perceptions of task-involving motivational climate and both task cohesion and social cohesion ( $r = .45$  and  $r = .23$ , respectively). With respect to perceptions of an ego-involving climate, a negative relationship was demonstrated with task cohesion only ( $r = -.18$ ). In an effort to analyze the relationships from a multivariate perspective, a canonical correlation analysis was also performed using Statistical Package for the Social Sciences multivariate analysis of variance (MANOVA; with discrim) macro. The motivational climate set included task-involving and ego-involving motivational climates, while the cohesion set included task and social dimensions. The overall multivariate test was significant, Wilks's  $\lambda = .78$ ,  $F(4, 1,986) = 65.59$ ,  $p < .001$ , and only the first canonical correlation accounted for both a statistically significant relationship and a substantive variance overlap (i.e., canonical correlation  $> .30$ ; Tabachnick & Fidell, 2001) between the two pairs of canonical variates. This first canonical correlation was equal to .45 (i.e., .20 overlapping variance). Examining the pattern of canonical loadings (correlations) between the individual variables and canonical variates, and using Tabachnick and Fidell's (2001) suggested cutoff criteria of  $> .30$ , task-involving (.99) and ego-involving (–.41) motivational climates were associated with task (.99) and social (.50) cohesion. That is, the combination of higher perceptions of a task-involving motivational climate and lower

perceptions of an ego-involving climate were associated with higher perceptions of both task and social cohesion.

### Motivational Climate Profiles and Perceptions of Cohesion (Test of H3)

To determine whether motivational climate profiles could be statistically supported and whether the profile groups demonstrated differences in perceptions of task and social cohesion, a cluster analysis was performed. Cluster analysis is a statistical procedure that groups participants based on their responses to predetermined variables. The procedures utilized in the present study followed those incorporated by Harwood, Cumming, and Fletcher (2004). Cluster groups were formed based on the criterion variables of task-involving and ego-involving motivational climate, and the identification of these groups followed steps outlined by Hair, Anderson, Tatham, and Black (1995). The first step required data screening to ensure there were no missing scores or outliers and to convert the raw scores to  $z$  scores for motivational climate variables. The second step generated motivational climate clusters using a hierarchical clustering method, which included Ward's method of linkage and squared Euclidean distance (Aldenderfer & Blashfield, 1984; Harwood et al., 2004). The best fit for the data was a four-cluster solution, which was then validated using a K-means nonhierarchical cluster analysis. Overall, it was concluded that the four-cluster solution was appropriate. Table 2 contains the means, standard deviations, and  $z$  score values of the cluster groups in relation to the motivational climate criterion variables.

#### Interpreting Clusters

The values in Table 2 were used to interpret the motivational climate groups. A criterion  $z$  value of  $\pm .50$  (Harwood et al., 2004) was utilized to indicate higher ( $z \geq .50$ ), moderate ( $-.50 < z < .50$ ), and lower scores ( $z \leq -.50$ ) on motivational climate. Therefore, Cluster 1 included those individuals who perceived a higher task-involving and lower ego-involving climate. Cluster 2 included those individuals who perceived a moderate task-involving but higher ego-involving climate. Cluster 3

TABLE 2  
Cluster Membership Values for Criterion Variables and Cohesion Scores

Clusters <sup>a</sup>	n	Task-Involving MC			Ego-Involving MC			Task Cohesion		Social Cohesion	
		M	SD	z	M	SD	z	M	SD	M	SD
1 (HL)	305	4.69	0.25	0.93	1.60	0.39	-0.86	7.22	1.23	6.28	1.97
2 (MH)	233	4.26	0.38	0.34	3.15	0.51	0.96	6.75	1.36	6.21	1.77
3 (ML)	269	3.82	0.31	-0.28	1.89	0.38	-0.52	6.46	1.29	5.64	1.89
4 (LH)	190	2.93	0.49	-1.52	3.13	0.66	0.94	5.65	1.48	5.39	1.71

Notes. Raw scores for motivational climate (MC) variables can range from 1 to 5. Scores for cohesion variables can range from 1 to 9.

<sup>a</sup>Cluster interpretation notation: L = lower, M = moderate, H = higher. The first letter refers to task-involving motivational climate and the second letter refers to ego-involving motivational climate.

included those individuals who perceived a moderate task-involving but lower ego-involving climate. Finally, Cluster 4 included those individuals who perceived a lower task-involving but higher ego-involving climate. A MANOVA (with clusters as the independent variable and task and ego motivational climate as the dependent variables) was conducted to ensure that the groups were statistically significantly different from one another to warrant their classifications. The MANOVA yielded a statistically significant result, Wilks's  $\lambda = .09$ ,  $F(6, 1,984) = 762.09$ ,  $p < .001$ ,  $\eta^2 = .70$ . Univariate analyses demonstrated that the groups differed significantly in perceptions of task-involving,  $F(3, 993) = 1,019.59$ ,  $p < .001$ ,  $\eta^2 = .76$ , and ego-involving motivational climates,  $F(3, 993) = 713.31$ ,  $p < .001$ ,  $\eta^2 = .68$ . Post-hoc tests supported the labeling of the various clusters.

### Motivational Climate and Cohesion

Mean cohesion values for each cluster are presented in Table 2. To determine if individuals classified within the various motivational climate clusters differed in perceptions of task and social cohesion, another MANOVA was conducted. The MANOVA was statistically significant, suggesting overall differences between the groups, Wilks's  $\lambda = .85$ ,  $F(6, 1,984) = 28.78$ ,  $p < .001$ ,  $\eta^2 = .08$ . Follow-up univariate analyses indicated that the groups generally differed with respect to perceptions of task cohesion,  $F(3, 993) = 56.58$ ,  $p < .001$ ,  $\eta^2 = .15$ , and social cohesion,  $F(3, 993) = 12.95$ ,  $p < .001$ ,  $\eta^2 = .04$ . With respect to task cohesion, post-hoc tests (Tukey's Honestly Significant Difference [HSD] homogenous subset analysis;  $p < .05$ ) indicated that the cluster indicative of those perceiving a higher task-involving motivational climate and a lower ego-involving climate (Cluster 1;  $M_{\text{task cohesion}} = 7.22$ ) was significantly higher statistically than Clusters 2 ( $M_{\text{task cohesion}} = 6.75$ ) and 3 ( $M_{\text{task cohesion}} = 6.46$ ), which were both subsequently significantly higher than Cluster 4 ( $M_{\text{task cohesion}} = 5.65$ ). In the case of social cohesion (Tukey's HSD homogenous subset analysis;  $p < .05$ ), Clusters 1 ( $M_{\text{social cohesion}} = 6.28$ ) and 2 ( $M_{\text{social cohesion}} = 6.20$ ) were found to

be significantly higher statistically than Clusters 3 and 4 ( $M_{\text{social cohesion}} = 5.64$  and  $5.39$ , respectively).

### Sources of Enjoyment as Moderators of Motivational Climate–Cohesion Relationships (Tests of H4 and H5)

Eight moderated hierarchical regression analyses were conducted to determine if athletes' sources of enjoyment (through self-referenced and other-referenced competency) were moderators of the motivational climate (task-involving and ego-involving) and cohesion (task and social) relationships. As such, task and social cohesion responses were entered as the dependent variables. Task-involving or ego-involving motivational climate variables were entered in the first block of the regression, followed by self- or other-referenced competency sources of enjoyment in the second block. In Block 3, a product of the previous two predictors was entered. Results are presented in Table 3. It should be noted that all variables were standardized prior to analyses.

### Task Cohesion as Dependent Variable

In relation to task cohesion, significant interactions were found between perceptions of other-referenced competency (source of enjoyment) and motivational climate variables. Specifically, there were statistically significant interactions between other-referenced competency and both ego motivational climate and task motivational climate (both  $p < .05$ ). No interactions were demonstrated within the present study when self-referenced competency (source of enjoyment) was examined as the moderator.

Figures 1 and 2 depict the interaction patterns in a manner following suggestions by Jaccard, Turrissi, and Wan (1990) and recently employed by Oliver, Markland, and Hardy (2010). Points on the graph were derived by calculating hypothetical task cohesion values based on inserting scores at +1 standard deviation, the mean (i.e., 0), and -1 standard deviation for each of the predictor variables in the resultant regression Equation (Cohen & Cohen, 1983).

TABLE 3  
Summary of Regression Results Regarding Sources of Enjoyment as a Moderator of the Motivational Climate–Cohesion Relationship

Dependent Variable	Independent Variable	R <sup>2</sup>	ΔR <sup>2</sup>	F	β	p(b)
Task Cohesion	Ego MC	.03	.03	0.81	-.15	.00
	Self-Ref <sup>a</sup>	.12	.09		.30	.00
	Product	.12	.00		.03	.37
Task Cohesion	Ego MC	.03	.03	11.54*	-.22	.00
	Other-Ref <sup>a</sup>	.05	.02		.16	.00
	Product	.06	.01		.11	.00
Task Cohesion	Task MC	.20	.20	0.13	.39	.00
	Self-Ref <sup>a</sup>	.23	.03		.18	.00
	Product	.23	.00		-.01	.72
Task Cohesion	Task MC	.20	.20	6.39*	.44	.00
	Other-Ref <sup>a</sup>	.20	.00		.07	.01
	Product	.21	.01		-.07	.01
Social Cohesion	Ego MC	.00	.00	0.25	.04	.19
	Self-Ref <sup>a</sup>	.06	.06		.24	.00
	Product	.06	.00		.02	.62
Social Cohesion	Ego MC	.00	.00	1.26	-.03	.38
	Other-Ref <sup>a</sup>	.03	.03		.20	.00
	Product	.03	.00		.04	.26
Social Cohesion	Task MC	.05	.05	0.11	.17	.00
	Self-Ref <sup>a</sup>	.08	.03		.18	.00
	Product	.08	.00		.01	.74
Social Cohesion	Task MC	.05	.05	1.99	.21	.00
	Other-Ref <sup>a</sup>	.08	.03		.17	.00
	Product	.08	.00		-.04	.16

Notes. MC = motivational climate.

\*Indicates statistical significance at  $p < .05$ ;  $F_{df} = (1,993)$ .

<sup>a</sup> Sources of enjoyment dimensions (self-reference competency; other-reference competency).

Furthermore, for each set of significant interaction results, the simple slopes of the regression lines were tested to determine if they significantly differed from zero (Aiken & West, 1991). All three regression lines found in Figure 1—high other-referenced competency,  $t_{(996)} = -2.60, p < .05$ ; mean other-referenced competency,  $t_{(996)} = -7.02,$

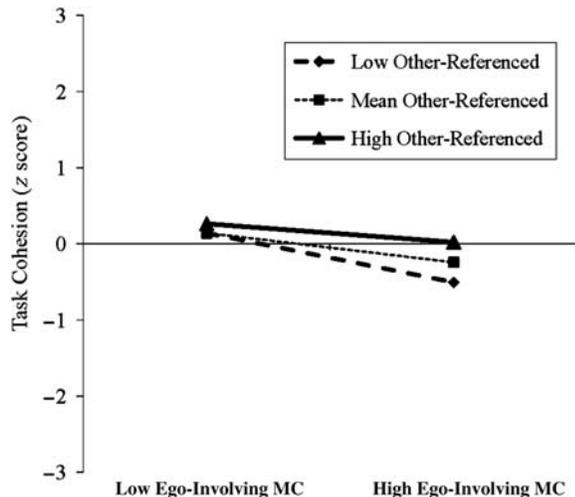


FIGURE 1 Interaction of other-referenced competency and ego-involving motivational climate predicting task cohesion.

$p < .001$ ; low other-referenced competency,  $t_{(996)} = -7.56, p < .001$ —and Figure 2—high other-referenced competency,  $t_{(996)} = 8.37$ ; mean other-referenced competency,  $t_{(996)} = 14.01$ ; low other-referenced competency,  $t_{(996)} = 11.49$  (all  $p < .001$ )—were found to be statistically significant, indicating that task cohesion was predicted by motivational climate across all levels of other-referenced competency.

In sum, these results suggest that the degree to which one derives enjoyment through other-referenced competency serves as a moderator in the motivational climate–task cohesion relationship. Specifically, the relationship between task cohesion perceptions and motivational climate is more pronounced for those individuals who are less likely to derive enjoyment through other-referenced competency. Differences in task cohesion perceptions are particularly pronounced in cases where the match between these individuals’ perceptions of enjoyment and motivational climate is not optimal (i.e., low other-referenced competency individual in a high ego-involving or low task-involving motivational climate).

#### Social Cohesion as Dependent Variable

No significant interactions were found between study variables in relation to social cohesion.

## DISCUSSION

The general focus of the present study was to examine the relationship between cohesion and motivational climate in a youth sport environment. Overall, it can be stated that there is a general relationship between these two constructs. A number of issues with respect to the specific objectives warrant further discussion, and the subsequent paragraphs will (a) highlight these issues in order of the hypotheses proposed in the present study and in relation to previous literature and (b) suggest practical implications and future directions.

Based on past literature (e.g., Heuzé et al., 2006), the first two hypotheses focused on the correlational relationship between perceptions of task-involving/ego-involving motivational climates and task/social cohesion. First, it was hypothesized that perceptions of a task-involving motivational climate would be positively related to task cohesion. This hypothesis was supported; however, it should be noted that this type of motivational climate was also positively related to perceptions of social cohesion within the present sample. Support for the second hypothesis was also found in that perceptions of an ego-involving motivational climate were negatively related to both task and social cohesion. In a general sense, the results are directionally congruent with how one would anticipate relationships to occur between a task-involving motivational climate and cohesion (positive) and an ego-involving motivational climate and cohesion (negative).

In contrast, it is interesting that social cohesion played a different role in the relationships within the present study compared with previous research, and this may be accounted for according to several characteristics of the current study. First, the sample in the present study was younger in age, larger, more diverse, and competed at a

lower level of competition compared with groups examined in previous literature. Consistent with this information, Heuzé et al. (2006) noted that the specificity of the sample in addition to the competitive level of the athletes (i.e., amateur vs. elite) could influence whether perceptions of social cohesion play an important role in various sport contexts and in relation to other variables. A second difference in the present study compared with previous research was the measures that were utilized. The measures in the present study were developed specifically for a youth population (i.e., MCSYS, YSEQ) and were different than those employed with adult populations (i.e., PMCSQ, Group Environment Questionnaire) with respect to wording and dimensionality.

The third hypothesis was oriented around climate profiling—an alternative method of examining perceptions of motivational climate. Essentially, this approach combines athletes' perceptions of task-involving and ego-involving motivational climates to develop participant clusters. As summarized in the "Results" section, the findings suggested that individuals who experience a motivational climate that is highly ego-involving while deemphasizing the task-involving climate (i.e., Cluster 4) also perceived their team as less cohesive from task and social perspectives. This finding represents an interesting spin on the original hypothesis, which was also generally supported, that the higher task-involving, lower ego-involving cluster (i.e., Cluster 1) would report the *greatest* perceptions of cohesion, and falls in line with the correlational analyses.

However, the results for Cluster 2 (i.e., moderate task-involving and higher ego-involving climate) also present an interesting point for discussion. Previous results (Heuzé et al., 2006), as well as the present study's canonical correlations, imply that decreasing ego-involving approaches is critical for optimizing perceptions of cohesion. However, the current findings using a climate profile approach suggest that an ego-involving climate may only be detrimental for cohesion *in the absence* of concurrent task-involving approaches to the motivational environment. Certainly, this discussion is made with some caution and speculation as causative statements are not warranted given the design of the present study.

It is important to note that this discussion, and the use of climate profiles, begs for an answer to a question posed by Harwood and Beauchamp (2007): "... can the motivational climate on a sport team really be both task and ego-involving at the same time?" (p. 216). Duda (2001) argued that there is neither theoretical nor empirical support for this approach. However, Harwood and Beauchamp noted that the current measures of motivational climate assess perceptions on a *contextual* level that focus on the group's environment generally rather than engaging athletes to respond with reference to any one specific situation. For example, it may be possible for coaches to approach

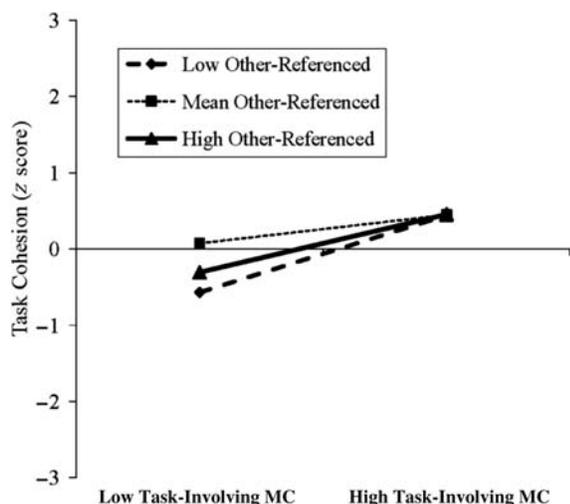


FIGURE 2 Interaction of other-referenced competency and task-involving motivational climate predicting task cohesion.

competitions/matches in an ego-involving manner while creating a more task-involving climate during practice sessions. Thus, it seems prudent to consider climate profiling in the present study and in relation to previous research utilizing the same analytical strategy.

The final set of analyses in the present study tested hypotheses about the moderating influence of athletes' reported sources of sport enjoyment on the motivational climate-cohesion relationships. The rationale for the hypotheses was derived from suggestions by Ntoumanis and Biddle (1998) that outcomes (i.e., cohesion in the present study) may be more positive when one's orientation (i.e., source of enjoyment in the present study) matches one's environment (i.e., motivational climate in the present study). However, there was little support for the fourth hypothesis stating that individuals who derive more enjoyment from the ability to demonstrate self-referenced competency would have a more amplified relationship between perceptions of a task-involving motivational climate and cohesion. Overall, it would appear that this source of enjoyment did not play a role in the main relationships of interest. A general conclusion is that perceptions of a task-involving motivational climate are positively related to perceptions of cohesion, regardless of how athletes derive sport enjoyment.

The results of the present study partially supported the fifth hypothesis. Specifically, the negative relationships between perceptions of an ego-involving motivational climate and task cohesion were weakened for those individuals who derived enjoyment through demonstrations of other-referenced competency. In other words, perceptions of cohesion were not as negatively related for those individuals deriving more enjoyment from competitive environments (vs. those who derive less enjoyment from these environments). These results support the matching hypothesis in that group perceptions are differentially related to ego-involving motivational climate, dependent on whether individuals derive enjoyment from that type of environment. Overall, it would seem imperative to understand how athletes derive enjoyment from sport and, if the facilitation of group cohesion is a goal, to identify if there are individuals on the team who are less inclined to find enjoyment in comparative situations (i.e., other-referenced competency). This might help direct the actions of coaches for developing the group climate and may be more relevant among younger and less competitive sport teams.

There are a number of future research directions that could be taken based on the results and approaches of the present study. First, the coach-initiated motivational climate and cohesion variables lend themselves well to analysis at both the individual and group levels. In future cases where data from intact groups are obtained, it is strongly encouraged that a multilevel statistical approach be utilized. In the present study, our focus on the individual level of analysis was dictated by the data collection procedures.

Intact teams were not approached, and many participants were the only members of their team to take part in the study.

Second, the present study examined perceptions of task-involving and ego-involving climates in a dichotomous fashion. However, as noted in the "Introduction," there is an opportunity to investigate perceptions regarding more specific task-involving structures (i.e., degree to which the coach focuses on effort, ensures role communications, and encourages cooperation) and ego-involving structures (i.e., degree to which the coach focuses on mistake-contingent punishment, treats athletes differently, and encourages competition; Newton et al., 2000). In a similar fashion, Stuntz and Garwood (2012) recently noted that while previous research has focused on mastery and performance climates, "a broader examination of the literature suggests that separately assessing the cooperative [i.e., rewards contingent on the success of the group] and individualistic [i.e., rewards contingent on self-improvement] aspects of mastery climate . . . is necessary in research and practice" (p. 272). Overall, there are likely theoretical and practical benefits to understanding the more specific components of the two climates typically examined.

Third, our "matching hypothesis" (Ntoumanis & Biddle, 1998) was derived from literature discussing the link between motivational climate and individuals' motivational orientations (i.e., task vs. ego orientations) rather than athletes' sources of enjoyment. Although the latter likely represents a relatively stable orientation toward sport and the two dimensions that were examined (i.e., self-referenced and other-referenced competencies) could be argued to share similarities to task/ego orientations, it would be worthwhile to replicate the present study by examining whether achievement orientations moderate the motivational climate-cohesion relationships in a similar fashion.

Fourth, the present study represents a descriptive approach to examining the motivational climate-cohesion relationship that was designed to investigate if the results from previous research with adults are similar when using a younger sample. However, as noted previously in this section, causative statements cannot be made due to the study's design. Even though a strong conceptual argument could be made to suggest that cohesion should be influenced by how the coach structures the motivational climate, future research should attempt to test this proposition.

Finally, if support is derived for the suggestion that changes in the coach-initiated motivational climate lead to subsequent changes in cohesion, providing and testing strategies to intervene with coaches might represent an efficient and effective manner to approach team-building (assuming team cohesion represents a desired outcome of the team-building process). There are many team-building activities for sport and exercise groups that have been used effectively within the age group under study in the present investigation (i.e., youth; Bruner & Spink, 2010). However, consideration of the coach-initiated motivational climate is

not typical in previous published interventions for team-building. Given the likelihood of using an indirect intervention approach (i.e., working with the coach as opposed to the whole group), strategies to improve or match the motivational climate may be less time-intensive. As final points, indirect interventions (i.e., team-building through group leaders rather than direct exposure to members) are considered an effective manner in which to proceed, and there are examples of motivational climate interventions in the extant literature to draw upon (e.g., Smith, Smoll, & Cumming, 2007). Overall, given the importance of cohesion to both the performance of the team (Carron et al., 2002) and individual retention in a sport environment (Spink et al., 2010), uncovering additional pathways to understanding and developing this important group variable is paramount.

### WHAT DOES THIS ARTICLE ADD?

There are theoretical and practical implications that emanate from the results of the present study. From a theoretical perspective, the results support and extend previous studies in three important ways. First, hypotheses generated through consideration of literature pertaining to achievement goal theory (Duda, 2001) and interdependence theory (Deutsch, 2006) were supported and provided evidence of the link between situational goal structures and group relations. Second, the present study extended previous findings by using a larger and more diverse set of athletes, thus providing more confidence that the proposed links between motivational climate and cohesion are relevant across sports and age groups. Third, evidence was provided regarding the importance of understanding how youth derive enjoyment from their sport experiences, and in relation to their interpretation of the athletic environment. As a result, athletes' sources of enjoyment, and specifically the degree to which they enjoy opportunities to display other-referenced competency, represent potent moderators of the motivational climate-cohesion relationship and warrant theoretical consideration in future studies.

From a practical perspective, the present results point toward a possible alternative, efficient, and indirect team-building strategy for increasing cohesion within sport groups by focusing on developing a task-involving climate. This development of cohesion has important implications for the performance of sport teams (Carron et al., 2002) and, perhaps more importantly given ongoing concerns of physical inactivity rates, the adherence of its members.

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