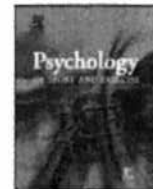




Contents lists available at SciVerse ScienceDirect

## Psychology of Sport and Exercise

journal homepage: [www.elsevier.com/locate/psychsport](http://www.elsevier.com/locate/psychsport)

## Influence of perceived and preferred coach feedback on youth athletes' perceptions of team motivational climate

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## ARTICLE INFO

*Article history:*

Received 7 July 2011

Received in revised form

10 February 2012

Accepted 13 February 2012

Available online 28 February 2012

*Keywords:*

Coaching

Youth sport

Feedback

Polynomial regression

## ABSTRACT

**Objectives:** This study examined youth ice hockey players' perceptions of individual feedback received from their coach, and the agreement and discrepancies between preferred and perceived coach feedback patterns, on athletes' perceptions of team motivational climate. The following research questions were answered: How does agreement in perceived and preferred coach feedback relate to task- and ego-involving motivational climate? How does the degree of discrepancy between perceived and preferred coach feedback relate to motivational climate? How does the direction of the discrepancy between perceived and preferred coach feedback relate to motivational climate?

**Design:** This study used non-probability based sampling within a cross-sectional (survey) design.

**Method:** Athletes ( $n = 70$ ) completed a self-report survey comprised of measures of coaching feedback and motivational climate. The data were examined using polynomial regression and response surface analysis.

**Results:** Linear associations were observed between coaching feedback and motivational climate, and unique associations between the perceived and preferred coach feedback discrepancies were distinctly related to increased perceptions of both task- and ego-involved motivational climates.

**Conclusions:** The type of feedback, purpose of the feedback, and agreement or discrepancy in perceptions and preferences for different feedback styles are important to understanding task- and ego-involved motivational climate in youth sport. Coaching programs should assist coaches in learning their athletes' preferences for positive and negative feedback in sport and matching these preferences with their individual feedback styles.

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The youth sport coach is responsible for helping athletes develop their skills, enjoy their experiences, and pursue performance standards (Smith & Smoll, 2002). As such, the coach has a strong influence on whether athletes maintain participation long term or drop-out of their sport (Fraser-Thomas & Côté, 2009; Weiss & Gould, 1986). Motivational climate is a key coaching variable that may relate to athlete sport experiences and attrition (Ames, 1992).

Motivational climate can be perceived as being predominantly focused on personal mastery and learning (i.e., task) or social comparison and performance outcomes (i.e., ego) (McArdle & Duda, 2002; Newton, Duda, & Yin, 2000). Coaches can create a task-involving climate by reducing the importance of winning and focusing on other participation motives such as skill development, effort, and affiliation with teammates. Ego-involving climates are created when the coach promotes intra-team rivalries, favors the most talented players, and punishes players for making mistakes

(McArdle & Duda, 2002; Newton et al., 2000). Many positive outcomes have been identified as resulting from a task-involved team motivational climate, including increased levels of sport competence (Halliburton & Weiss, 2002), sport self-confidence (Magyar & Feltz, 2003), team cohesion (Heuzé, Sarrazin, Masiero, Raimbault, & Thomas, 2006), and collective efficacy (Heuzé et al., 2006; Magyar, Feltz, & Simpson, 2004).

Players within a team do not always share the same perceptions of the team's motivational climate (e.g., Cumming, Smoll, Smith, & Grossbard, 2007; Magyar et al., 2004). Athletes may be less aware of how the coach interacts with other team members, thus limiting their perceptions of the team climate to their own personal exchanges with the coach (Cumming et al., 2007). As such, individual perceptions of coach behaviors, such as the individual feedback that coaches provide, have been proposed as important factors associated with motivational climate (Duda, 2001).

Coaching feedback can be viewed as generally encouraging, supportive, and instructionally-based or punishment-oriented feedback and ignoring strategies (e.g., McArdle & Duda, 2002;

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Smith, Smoll, & Cumming, 2007; Smith, Smoll, & Curtis, 1979; Smoll, Smith, & Cumming, 2007). To date, this line of research has primarily focused on the frequency with which coaches provide particular types of feedback or on the total amount of feedback coaches provide their athletes. Horn (1985) has suggested that the appropriateness and contingency of coaches' feedback might be more critical than the frequency or amount of feedback. As such, the quality of coach feedback (i.e., what type of coaching responses athletes prefer or need) should be understood rather than simply examining the type of coaching responses athletes perceive that they receive. Furthermore, drawing from the person-environment fit paradigm (Ender & Magnusson, 1976) and organizational behavior research (see Edwards, 1991 for review), the congruence or fit between what a person (e.g., the athlete) wants or needs and what they actually perceive they are getting from the environment (e.g., the coach) is critical to success, satisfaction, and well-being. Therefore, examining the congruence between athletes' perceptions of coach feedback and athletes' preferred coach feedback may help to determine if particular feedback patterns are perceived by athletes as positive coaching behaviors. The current study tests the association between congruence of athletes' perceptions of coach feedback and their preferences with task- and ego-involving motivational climates.

Chelladurai's (1984) seminal work on athlete and coach leadership recognized that effective leadership and performance are dependent upon the congruence between athletes' preferred and perceived feedback in sport. Specifically, Chelladurai proposed that athlete performance and satisfaction are optimum when there is congruence with athlete's preferences and perceptions. Congruence was examined by testing a curvilinear relationship whereby performance and satisfaction were highest when the athletes perceived that they got what they needed or wanted from their coaches. While this work advanced leadership theory in sport, one of the problems introduced in the work of Chelladurai (and the organizational behavior research on which his work is based) is the use of discrepancy scores to test the congruence hypothesis. That is, discrepancy scores were derived by subtracting athletes' perceptions from their preferences. There are many methodological problems with this algebraic difference approach to studying congruence (or discrepancies), including: (i) collapsing conceptually distinct measures into one score precludes interpretation; (ii) a congruence or discrepancy score confounds the effects of understanding the independent components (e.g., perceptions, preferences) on the outcome; (iii) difference scores are less reliable than the component measures; and (iv) it is statistically impossible for the discrepancy score to account for more variance in the outcome than the components (see Edwards, 1994, 2002). Furthermore, single items are often used to measure the components and discrepancy scores. Single-item measures are prone to measurement error (Edwards, 2002). The current study addresses the limitation of biased results by adopting and testing analytical procedures that are proposed to be appropriate for the assessment of congruence (Edwards, 2002; Edwards & Parry, 1993). Specifically, we used polynomial regression analysis to examine the simultaneous effects of perceived and preferred coach feedback, as well as the higher-order terms (perceived\*perceived, preferred\*preferred, perceived\*preferred). We also developed a scale to measure preferred coach feedback in line with the conditions set forth by Edwards (2002) such that perceptions and preferences were commensurate and the same Likert-type scale was used to assess each component.

The purpose of the current study was to examine the relationship between youth sport athletes' perceptions of the individual feedback they received from the head coach, their preferences for individual feedback, and their perceptions of the team's motivational climate. The following research questions were answered: How does agreement in perceived and preferred coach feedback

relate to task- and ego-involving motivational climate? How does the degree of discrepancy between perceived and preferred coach feedback relate to motivational climate? How does the direction of the discrepancy between perceived and preferred coach feedback relate to motivational climate? Based on theoretical perspectives and empirical findings (Chelladurai, 1984; Ender & Magnusson, 1976), and in line with our research questions, there were several hypotheses. The agreement hypotheses, suggesting that the perceived and preferred coaching feedback predictors would have similar linear and/or non-linear associations with the motivational climate outcomes, were: (i) perceived and preferred *positive* coaching feedback would have positive associations with task-involving motivational climate and negative associations with ego-involving motivational climate; and (ii) perceived and preferred *negative* coaching feedback would have negative associations with task-involving motivational climate and positive associations with ego-involving motivational climate. The degree of discrepancy hypothesis, enabling us to examine the extent to which perceived and preferred coaching feedback predictors differed from one another, was: the degree of discrepancy would relate to motivational climate such that the more discrepant the perceived and preferred *positive* or *negative* coach feedback, the higher the ego-involved motivational climate and lower task-involving motivational climate. Finally, the direction of discrepancy hypothesis, enabling us to examine which predictor is higher than the other, suggested: task-involving motivational climate would be lowest, and ego-involving motivational climate would be highest, when the discrepancy would be such that preferences were higher than perceptions for *positive* coaching feedback and vice versa for *negative* coaching feedback styles. A secondary research aim, for descriptive purposes only, was to compare athletes' preferred and perceived coach feedback patterns.

## Method

### Participants and procedures

The participants ( $N = 70$ ) were 13–14 year old male hockey players from eight teams in Bantam AA ( $n = 12$ , 17.1%) and BB ( $n = 58$ , 82.9%) divisions. AA and BB are labeled as the highest competitive levels and are thus structured and geared for the most skilled and elite hockey players. Following behavioral ethics approval from the university and hockey associations, data collection involving the completion of a questionnaire took place approximately one third into the regular hockey season at each teams' home arena. Six of the eight teams scheduled their sessions before practice and two teams scheduled their sessions after a practice. Participants had parental consent and provided their own assent prior to the session. Coaches were not present when the questionnaires were administered. Time to completion was approximately 20 min.

### Measures

In addition to providing information on age and hockey division, athletes were asked to complete three self-report questionnaires to assess perceived and preferred coaching feedback and motivational climate. Specifically, to examine the congruence between perceptions and preferences for coach feedback and the association to motivational climate, it was necessary to measure the athletes' perceptions and preferences on the same content dimensions (Edwards, 2002). It was also desirable that these dimensions were comprehensive such that they assessed variation in individual feedback that captured both positive and negative styles. For these reasons, we used and modified the Coaching Feedback Questionnaire (CFQ; Amorose & Horn, 2000).

### Perceived coach feedback

Athletes were asked to report, on a 5-point Likert-type scale from 1 (*not at all*) to 5 (*very much*), how typical/usual their coaches used each of 16 feedback styles/types. Based on the original development and use of the scale (Amorose & Horn, 2000), the feedback responses were averaged to create three subscales: positive and informational (8 items), punishment-oriented (4 items), and nonreinforcement (4 items) feedback. For the current study, all of the CFQ items that represented informative feedback were modified to reflect an ice hockey context. There is evidence of internal consistency for the CFQ subscale scores ( $\alpha = 0.72-.83$ ) (Amorose & Horn, 2000).

### Preferred coach feedback

Modifications to the CFQ were made to measure how much each athlete wanted or needed each of the 16 coach feedback styles on a 5-point Likert-type scale from 1 (*not at all*) to 5 (*very much*). Similar to the perceived coach feedback scores, the items were averaged into positive and informational feedback, punishment-oriented feedback, and nonreinforcement feedback subscales. This measure was developed in line with congruence research such that there were multiple items assessing feedback, multiple but identical content dimensions, and preferences and perceptions were commensurate by using the same Likert-scale in the assessment of the components (Edwards, 1994, 2002).

### Motivational climate

Athletes' perceptions of the team's motivational climate were measured using the Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2; Newton et al., 2000). Athletes were asked to indicate, on a 5-point Likert-type scale (1 = strongly disagree to 5 = strongly agree), the extent to which each of 33 statements was characteristic of their team's climate. Mean scores for task- and ego-involving motivational climates were calculated by averaging the 17 and 16 items, respectively. There is evidence of internal consistency for the scale scores ( $\alpha = 0.87-.88$ ) (Boixados, Cruz, Torregrosa, & Valiente, 2004; Newton et al., 2000).

### Data analysis

Following tests of assumptions and scale psychometrics, descriptive statistics were calculated for the main study variables and Pearson correlation coefficients were examined. *T*-tests were used to compare the athletes' scores on preferred and perceived coach feedback dimensions of positive and informational feedback, punishment-oriented feedback and nonreinforcement feedback.

For the main analyses, separate regression models were tested to investigate the associations between the perceived and preferred coach feedback (positive and informational, punishment-oriented, and nonreinforcement) and task- or ego-involving motivational climate. Coaching feedback congruence/discrepancy was modeled as polynomial regression terms using the general equation:  $Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 + e$ , where  $Z$  = either task or ego-involving motivational climate (dependent variable),  $X$  is perceptions and  $Y$  is preferences. Using a polynomial approach, examination of discrepancies included an estimation of the component parts ( $X$  and  $Y$ ), the square of these variables, and the cross-product of these variables to assess the linear, non-linear, and joint relationships between coaching feedback and motivational climate, respectively. This approach avoids problems with difference scores because the independent effect of each component is retained (Edwards, 1994). Furthermore, we used response surface methodology to examine (1) how congruence in coaching feedback related to motivational climate, (2) how the degree of discrepancy between the coaching feedback related to motivational climate, and

(3) how the direction of the discrepancy between the coaching feedback related to motivational climate. In this way, the results from the polynomial regression are not directly interpreted, but rather the coefficients are used to examine the response surface pattern by transforming the coefficients in each regression model into four surface test values ( $a_1-a_4$ ; Kazén & Kuhl, 2011; Shanock, Baran, Gentry, Pattison, & Heggstad, 2010). The values of  $a_1$  ( $\beta_{x_1} + \beta_{x_2}$ ) reflect the linear relationship between the congruence in perception and preference scores and motivational climate, whereas  $a_2$  ( $\beta_{x_3} + \beta_{x_4} + \beta_{x_5}$ ) values reflect the non-linear relationship (i.e., curvature) between the agreement in perception and preference scores and motivational climate. The values of  $a_3$  ( $\beta_{x_1} - \beta_{x_2}$ ) reflect how the direction of the discrepancy between perception and preference scores is related to motivational climate. The values of  $a_4$  ( $\beta_{x_3} - \beta_{x_4} + \beta_{x_5}$ ) reflect how the degree of discrepancy between perception and preference scores relate to motivational climate (Shanock et al., 2010). All predictor variables were centered (Aiken & West, 1991; Kazén & Kuhl, 2011).

### Results

Descriptive statistics are presented in Table 1. All scale scores had moderate internal consistency coefficients ( $\alpha = 0.68-.78$ ), except the perceived and preferred nonreinforcement feedback subscales ( $\alpha = 0.51$  and  $.53$ , respectively). Further exploration of the nonreinforcement items suggested that there were two distinct styles embedded within this construct, namely two items assessing "ignoring good performances" and two items assessing "ignoring bad/poor performances". Rather than eliminate nonreinforcement feedback from the main analyses, we averaged the two similar items and created nonreinforcement for good performance

**Table 1**

Score Ranges, means, standard Deviations, Skewness, and Kurtosis for all study variables among youth hockey players ( $N = 70$ ).

Variable	$\alpha$	Score range	Mean (SD)	Skewness <sup>a</sup>	Kurtosis <sup>b</sup>
Task-involved climate		1.53–5.00	3.58 (.71)	-.63	.59
Ego-involved climate		1.25–4.25	2.54 (.73)	.49	-.29
<i>Perceived coach feedback</i>					
Positive & Informational Feedback (PIF)	.78	1.12–4.62	2.94 (.75)	-.07	-.17
Punishment-oriented Feedback (POF)	.68	1.00–4.50	2.63 (.95)	-.06	-.78
Nonreinforcement/ignoring feedback	.51	1.00–5.00	2.36 (.76)	.64	1.15
Nonreinforcement of good performance (NGP)	–	1.00–5.00	2.61 (1.06)	.39	-.18
Nonreinforcement of poor performance (NPP)	–	1.00–5.00	2.11 (.97)	1.09	1.46
<i>Preferred coach feedback</i>					
Positive & Informational Feedback (PIF)	.77	2.25–5.00	3.79 (.71)	-.38	-.64
Punishment-oriented Feedback (POF)	.65	1.00–4.75	2.14 (.83)	.77	.73
Nonreinforcement/ignoring feedback	.53	1.00–4.50	1.98 (.81)	.66	.06
Nonreinforcement of good performance (NGP)	–	1.00–4.00	1.91 (.89)	.57	-.94
Nonreinforcement of poor performance (NPP)	–	1.00–5.00	2.05 (1.15)	.93	.17

<sup>a</sup> Std Error Skewness = .29.

<sup>b</sup> Std Error Kurtosis = .567.

**Table 2**

Pearson product–moment correlation coefficients among motivational climate and coaching feedback variables among youth hockey players ( $N = 70$ ).

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Task-involved climate	–									
2. Ego-involved climate	–.36*	–								
3. Perceived positive information	.46*	–.23*	–							
4. Perceived punishment	–.04	.21	.14	–						
5. Perceived nonreinforcement good performance	–.34*	.54*	–.53*	.08	–					
6. Perceived nonreinforcement poor performance	–.30*	.18	–.11	–.16	.12	–				
7. Preferred positive information	–.02	.01	.18	–.01	–.05	.07	–			
8. Preferred punishment	–.02	.18	.24*	.36*	–.09	–.02	–.01	–		
9. Preferred nonreinforcement good performance	–.06	.02	.04	.24*	.01	.08	–.28*	.28*	–	
10. Preferred nonreinforcement poor performance	–.23*	.27*	–.08	.11	.10	.25*	–.15	.18	.23*	–

\*  $p < 0.05$ .

feedback perception and preference variables ( $r = .49$  and  $.37$ ,  $p < 0.01$ ) and nonreinforcement for poor performance feedback perception and preference variables ( $r = .38$  and  $.50$ ,  $p < 0.01$ ). The means for perceived and preferred coach feedback were significantly different: positive informational feedback:  $t(70) = -7.57$ ,  $p < 0.001$ , punishment feedback:  $t(70) = 4.10$ ,  $p < 0.001$ , and nonreinforcement feedback for good performance,  $t(70) = 4.25$ ,  $p < 0.001$ . There was no significant difference in the reported nonreinforcement for poor performance feedback,  $t(70) = .41$ ,  $p = 0.68$ . Pearson correlation coefficients are presented in Table 2.

The main analyses are presented in Table 3–6, predicting task-involved and ego-involved motivational climate from positive and information feedback, punishment feedback, and nonreinforcement feedback for good and poor performance (respectively). The first research question (how does agreement in perceived and preferred coach feedback relate to task- and ego-involving motivational climate?) was examined looking at the response surface values  $a_1$  and  $a_2$  (see Table 3–6). Based on the significant response surface values presented in the tables, as perceived and preferred punishment (see Table 4) and nonreinforcement for good performances (see Table 5) feedback increases, ego-involving motivational climate increases. Also, as perceived and preferred nonreinforcement for good performances increase, task-involved motivational climate decreases.

The second research question (how does the degree of discrepancy between perceived and preferred coach feedback relate to motivational climate?) was examined while interpreting

the  $a_4$  surface value. This value was not significant for any model (see Table 3–5) except in Table 6 such that task-involving motivational climate decreases more sharply as the degree of discrepancy between perceived and preferred nonreinforcement for poor performances feedback increases.

The third research question (how does the direction of the discrepancy between perceived and preferred coach feedback relate to motivational climate?) is addressed while interpreting the  $a_3$  surface value. In Table 3, a significant negative  $a_3$  value indicates that ego-involving motivational climate is higher when the discrepancy is such that preferred positive and informational feedback is higher than perceived positive and informational feedback. Task-involved motivational climate is higher when perceived positive and informational feedback is higher than preferred positive and informational feedback. Contrarily, ego-involved motivational climate is higher when perceived nonreinforcement for good performances feedback is higher than preferred nonreinforcement for good performances feedback (see Table 5). Response surface graphs, depicting the associations among coaching feedback and motivational climate variables in the current study, can be obtained from the corresponding author.

**Discussion**

This study examined the association between athletes' perceptions of, and preferences for, individual feedback received from the head coach and the team's motivational climate. A secondary objective was to compare the athletes' perceived and preferred

**Table 3**

Regression analyses predicting task- and ego-involved motivational climate from perceived and preferred positive and informational coach feedback.

	Task-involved motivational climate			Ego-involved motivational climate		
	b (se)	$\beta$	$R^2$	b (se)	$\beta$	$R^2$
			.26**			.16*
Perceived	.42 (.11)	.44**		–.22 (.11)	–.23*	
Preferred	–.09 (.12)	–.09		.18 (.13)	.19	
Perceived $\times$ Perceived	–.15 (.11)	–.15		–.09 (.12)	–.10	
Preferred $\times$ Preferred	–.06 (.16)	–.06		.46 (.16)	.38**	
Perceived $\times$ Preferred	.20 (.15)	.17		–.12 (.15)	–.10	
Surface values						
$a_1$	.33			–.03		
$a_2$	.18			.24		
$a_3$	.05**			–.40**		
$a_4$	.24			.48		

Note:  $a_1 = (b_1 + b_2)$ , where  $b_1$  is beta coefficient for perceived positive and informational feedback and  $b_2$  is beta coefficient for preferred positive and informational feedback.  $a_2 = (b_3 + b_4 + b_5)$ , where  $b_3$  is beta coefficient for perceived positive and informational feedback squared,  $b_4$  is beta coefficient for the cross-product of perceived and preferred positive and informational feedback, and  $b_5$  is beta coefficient for preferred positive and informational feedback squared.  $a_3 = (b_1 - b_2)$ ;  $a_4 = (b_3 - b_4 + b_5)$ ;  $b$  = unstandardized regression coefficient, se = standard error; \* $p < 0.05$ ; \*\* $p < 0.01$ .

**Table 4**

Regression analyses predicting task- and ego-involved motivational climate from perceived and preferred punishment coach feedback.

	Task-involved motivational climate			Ego-involved motivational climate		
	b (se)	$\beta$	$R^2$	b (se)	$\beta$	$R^2$
			.06			.17*
Perceived	–.02 (.10)	–.03		.09 (.09)	.13	
Preferred	–.01 (.13)	–.01		.19 (.12)	.23	
Perceived $\times$ Perceived	–.16 (.10)	–.22		.26 (.09)	.36**	
Preferred $\times$ Preferred	–.08 (.11)	.12		–.02 (.10)	–.03	
Perceived $\times$ Preferred	.04 (.15)	.04		–.10 (.14)	–.10	
Surface values						
$a_1$	–			.29*		
$a_2$	–			.14		
$a_3$	–			–.10		
$a_4$	–			.33		

Note:  $a_1 = (b_1 + b_2)$ , where  $b_1$  is beta coefficient for perceived punishment feedback and  $b_2$  is beta coefficient for preferred punishment feedback;  $a_2 = (b_3 + b_4 + b_5)$ , where  $b_3$  is beta coefficient for perceived punishment feedback squared,  $b_4$  is beta coefficient for the cross-product of perceived and preferred punishment feedback, and  $b_5$  is beta coefficient for preferred punishment feedback squared;  $a_3 = (b_1 - b_2)$ ;  $a_4 = (b_3 - b_4 + b_5)$ ;  $b$  = unstandardized regression coefficient, se = standard error; \* $p < 0.05$ ; \*\* $p < 0.01$ .

**Table 5**  
Regression analyses predicting task- and ego-involved motivational climate from perceived and preferred nonreinforcement for good performances coach feedback.

	Task-involved motivational climate			Ego-involved motivational climate		
	<i>b</i> (se)	$\beta$	$R^2$	<i>b</i> (se)	$\beta$	$R^2$
			.15*			.32**
Perceived	-.20 (.08)	-.30*		.33 (.07)	.50**	
Preferred	-.08 (.11)	-.09		-.08 (.10)	-.10	
Perceived $\times$ Perceived	-.09 (.06)	-.18		.01 (.05)	.03	
Preferred $\times$ Preferred	.04 (.13)	.05		.18 (.11)	.21	
Perceived $\times$ Preferred	.03 (.09)	.04		-.01 (.07)	-.02	
Surface values						
$a_1$	-.27*			.25*		
$a_2$	-.02			.19		
$a_3$	-.12			.40**		
$a_4$	-.08			.21		

Note:  $a_1 = (b_1 + b_2)$ , where  $b_1$  is beta coefficient for perceived nonreinforcement feedback for good performances and  $b_2$  is beta coefficient for preferred nonreinforcement feedback for good performances.  $a_2 = (b_3 + b_4 + b_5)$ , where  $b_3$  is beta coefficient for perceived nonreinforcement feedback for good performances squared,  $b_4$  is beta coefficient for the cross-product of perceived and preferred nonreinforcement feedback for good performances, and  $b_5$  is beta coefficient for preferred nonreinforcement feedback for good performances squared;  $a_3 = (b_1 - b_2)$ ;  $a_4 = (b_3 - b_4 + b_5)$ ;  $b$  = unstandardized regression coefficient, se = standard error; \* $p < 0.05$ ; \*\* $p < 0.01$ .

scores on coach feedback. Based on the research findings, the type of feedback, purpose of the feedback, and agreement or discrepancy in perceptions and preferences for different feedback styles are important to understanding task- and ego-involved motivational climate in youth sport. Also, as expected, athletes preferred more positive informational feedback than they received, and preferred less punishment feedback and less nonreinforcement for good performances than they perceived they were getting.

In the agreement hypothesis, perceived and preferred positive coaching feedback styles (e.g., informational) were expected to have positive associations with task-involving motivational climate and negative ones with ego-involving motivational climate. Furthermore, perceptions and preferences for negative coaching feedback styles (e.g., punishment, nonreinforcement) were both expected to relate negatively to task-involving and positively to ego-involving motivational climate. The results partially supported this

**Table 6**  
Regression analyses predicting task- and ego-involved motivational climate from perceived and preferred nonreinforcement for poor performances coach feedback.

	Task-involved motivational climate			Ego-involved motivational climate		
	<i>b</i> (se)	$\beta$	$R^2$	<i>b</i> (se)	$\beta$	$R^2$
			.19*			.13
Perceived	-.03 (.11)	-.03		.01 (.11)	.01	
Preferred	-.15 (.10)	-.24		.13 (.10)	.21	
Perceived $\times$ Perceived	-.15 (.07)	-.35*		.08 (.07)	.19	
Preferred $\times$ Preferred	-.02 (.06)	-.01		.03 (.06)	.09	
Perceived $\times$ Preferred	.03 (.07)	.06		.03 (.07)	.06	
Surface values						
$a_1$	-.17			—		
$a_2$	-.12			—		
$a_3$	.12			—		
$a_4$	-.18*			—		

Note:  $a_1 = (b_1 + b_2)$ , where  $b_1$  is beta coefficient for perceived nonreinforcement feedback for poor performances and  $b_2$  is beta coefficient for preferred nonreinforcement feedback for poor performances.  $a_2 = (b_3 + b_4 + b_5)$ , where  $b_3$  is beta coefficient for perceived nonreinforcement feedback for poor performances squared,  $b_4$  is beta coefficient for the cross-product of perceived and preferred nonreinforcement feedback for poor performances, and  $b_5$  is beta coefficient for preferred nonreinforcement feedback for poor performances squared.  $a_3 = (b_1 - b_2)$ ;  $a_4 = (b_3 - b_4 + b_5)$ ;  $b$  = unstandardized regression coefficient, se = standard error; \* $p < 0.05$ ; \*\* $p < 0.01$ .

hypothesis, such that as perceived and/or preferred punishment and nonreinforcement for good performances increased, ego-involving motivational climate (i.e., an environment focused on social comparison and outcomes) increased. Furthermore, as perceived and/or preferred nonreinforcement for good performances increased, task-involving motivational climate decreased, suggesting any amount of 'non-feedback' during good plays or skilled moves is not a desired reaction among youth hockey players. Hassell, Sabiston, and Bloom (2010) found that elite youth female athletes expressed frustration when their coaches ignored them or failed to acknowledge their contributions to the team. Since the coach-athlete relationship may be the most important sport interaction (Mageau & Vallerand, 2003), and the relationship is most effective when there is a dynamic process whereby the coach and athlete share interrelated thoughts, feelings, and behaviors (Jowett, Paull, & Pensgaard, 2005), it is not surprising that the athletes interpret nonreinforcement (i.e., ignoring) from the coach as detrimental to a task-involving motivational climate and supportive of an ego-involving motivational climate. It is important that coaches realize the significance of giving feedback following good performances, and attempt to incorporate positive and informational feedback (based on the current study findings) into their interactions with their athletes following game play. These linear associations support work on the value of a congruence between coach and athlete aims, goals, and personalities (Chelladurai, 1984; Horne & Carron, 1985; Kenow & Williams, 1999) and highlight the importance of coaches being aware of the needs of their athletes.

The degree of the discrepancy was important to understanding task-involving motivational climate. As the discrepancy between perceived and preferred nonreinforcement for poor performances increased, task-involving motivational climate decreased more sharply. This finding suggests that when athletes' perceptions and preferences for a coach ignoring their poor performances are congruent or similar, task-involving motivational climate is not affected, however if athletes feel that there is a large discrepancy (i.e., their coach doesn't ignore their poor performances but the athlete strongly prefers that they do ignore these performances), the athlete reports much lower task-involving motivational climate. This finding is likely related to athletes' desires to protect their athletic identities (Brewer, Van Raalte, & Linder, 1993) and avoid ego threats such as having a coach identify their poor performances. Moreover, Weiss, Smith, and Theeboom (1996) noted that boys and girls between the ages of eight and sixteen reported that self-esteem enhancement was an important outcome of youth sport participation. Given the importance of athletic identity and self-esteem enhancement for youth sport participants, it would be important to review the following quote from Smoll and Smith (1989):

The ultimate effects of coaching behaviors are mediated by the meaning that players attribute to them. In other words, cognitive and affective processes serve as filters between overt coaching behaviors and youngsters' attitude toward their coach and their sport experience (p. 1527).

Based on the current results and the direction of discrepancy hypothesis, ego-involving motivational climate was higher when athletes' wanted more positive and informational feedback than they felt they were getting from their coach. These findings are intuitive, and should be directed at coaching programs to ensure coaches are learning strategies to provide this type of feedback consistently. Also, ego-involved motivational climate was higher when athletes perceived their coaches to be ignoring their good performances. This is alarming since an ego-involving motivational climate has been linked to higher levels of athletes' anxiety, worry, tension, perceived performance pressure, and maladaptive coping

strategies (Treasure & Roberts, 1998). Efforts are needed to educate coaches on the value of informational feedback to youth athletes, and the importance of providing feedback rather than ignoring good performances.

A task-involving motivational climate (i.e., a team environment focused on mastery and learning) was highest when athletes perceived higher positive and informational feedback than they preferred. Receiving more informational feedback (i.e., praise in response to successful performances as well as encouragement and technical instruction in response to mistakes) from the coach than desired may have a positive impact on youth athletes since they likely feel their coaches are spending more time with them, and noticing specific technical and tactical skills that the athlete displays in games. In a study of elite youth female athletes, Hassell et al. (2010) found that the athletes respected and trusted the informational support provided by their coaches and this type of support was highly valued. Furthermore, the association between a task-involved climate and athletes' perceptions of their coaches providing them with praise, encouragement, and not ignoring their mistakes has been reported among female high school athletes (Smith, Fry, Ethington, & Li, 2005). Since task-involved motivational climate is associated with positive performance outcomes such as higher sport competence and self-confidence and greater team cohesion and connectedness (Halliburton & Weiss, 2002; Heuzé, Sarrazin et al., 2006; Magyar & Feltz, 2003; Olympiou, Jowett, & Duda, 2008), coaches need to be aware of their athletes' preferences in receiving informational feedback and attempt to deliver individualized coaching strategies that at least match, and better, their athletes' preferences.

There are several limitations that need to be discussed in addition to the self-report and cross-sectional nature of the collected data. First, participants were instructed to report the typical individual feedback provided by their head coach. However, team sports like hockey include several assistant coaches who also provide players with feedback in response to their performances. Second, the CFQ only measured different types of verbal coach feedback patterns and does not account for the non-verbal feedback that likely encompasses the spectrum of positive and negative feedback. Third, previous researchers (e.g., Amorose & Horn, 2000; Nicaise, Cogerino, Bois, & Amorose, 2006) have reported higher reliability coefficients than those reported in the current study for the CFQ. This may be a result of the modifications made to the scale to contextualize the items for hockey, or due to the younger age of participants. Also, there is limited validity evidence for the CFQ items. Regardless of these limitations, the current study may have advanced the understanding of coaching feedback in finding separate subscales for nonreinforcement feedback directed at good and poor performances. Further research is needed to examine the unique contributions to understanding these feedback styles, and it would be prudent to identify additional items to assess these non-reinforcement styles to enable further psychometric testing. Fourth, there are similarities in some of the items on the PMCSQ-2 and the CFQ scales, and future research should explore the discriminant validity of the underlying constructs. Fifth, the current study did not account for potential clustering of scores within teams. Athletes in the current study were recruited from several different teams and a similar response may be noted among athletes on the same team compared to athletes from different teams. While clustered data can be examined statistically, it was not tested in the current study.

Notwithstanding the limitations, this study advances the applied sport psychology literature by: (1) highlighting the importance of understanding athletes' individual perceptions of coach feedback on the motivational climate, and (2) introducing the concept of perceived-preferred discrepancies as important and highly understudied factors associated with perceptions of

motivational climate. Based on the current findings, coaches should be more inclined to focus on the feedback they provide to athletes individually in order to create an effective learning environment for every player within the team. Furthermore, coaches may need to spend time understanding their athletes' needs and preferences and designing practices to target individualized approaches to growth and development. In this way, the results can be used to better prepare youth sport coaches to meet the goals of youth sport which are centered on enhancing the growth and development of young athletes.

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