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THE RELATIONSHIP BETWEEN SELF-RATED ATHLETE LEADERSHIP
CHARACTERISTICS, SELF-CONSTRUAL,
AND TEAM COHESION

by

Michelle M. Peters

A Thesis
Submitted to the Faculty of Graduate Studies
Through The Department of Kinesiology
in Partial Fulfillment of the Requirements for
the Degree of Master of Human Kinetics
at the University of Windsor

Windsor, Ontario, Canada

2013

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The Relationship Between Self-Rated Athlete Leadership Characteristics,
Self-Constraint, and Team Cohesion

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22 May 2013

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ABSTRACT

The importance of cohesion in the study of sport teams has long been recognized by group dynamics researchers (e.g., Brawley, Carron, & Widmeyer, 1987). However, drawing on the Conceptual Framework of Cohesion in Sport (Carron, 1982), many antecedents of cohesion have yet to be explored in detail. Therefore, the current study focused on two of the antecedent factors from Carron's framework. Specifically, this study examined the relationship concerning athlete leadership and self-construal in relation to team cohesion. Athletes ($N = 278$) from a variety of varsity level sport teams competing within the Canadian Interuniversity Sport (CIS) Association participated in this study. Structural Equation Modeling revealed that athletes who viewed themselves as possessing high levels of leadership characteristics, and having a dominant interdependent self-construal felt more task and socially cohesive with their teammates. Additionally, cohesion was not associated with teammates who construed themselves in an independent fashion.

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TABLE OF CONTENTS

DECLARATION OF ORIGINALITY	iii
ABSTRACT	iv
ACKNOWLEDGEMENTS	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF APPENDICES	x
RESEARCH ARTICLE	1
Introduction	1
Method	10
Participants	10
Measures	10
Procedure	13
Results	14
Descriptive Statistics	14
Measurement Models	15
Structural Models	16
Discussion	17
REFERENCES	25
LITERATURE REVIEW	40
Introduction	40
Cohesion	40
Definition and Characteristics of Cohesion	40
Conceptual Model of Cohesion	43
Measurement of Cohesion	45
Framework for the Study of Cohesion in Sport	48
Athlete Leadership	51
Athlete Leadership Definition and Characteristics	52
Theories and Models for the Study of Leadership in Sport	53
Measurement of Athlete Leadership	55

Athlete Leadership Research.....	60
Self-Construals.....	64
Self-Construal Definition and Characteristics.....	64
Measurement of Self-Construals.....	65
Self-Construal Research.....	67
REFERENCES.....	70
APPENDICES.....	81
Appendix A.....	81
Appendix B.....	82
Appendix C.....	85
Appendix D.....	86
Appendix E.....	89
Appendix F.....	90
Appendix G.....	91
VITA AUCTORIS.....	93

LIST OF TABLES

<i>Table 1.</i> Demographics for Sport Type.....	33
<i>Table 2.</i> Bivariate Correlations Among Team Cohesion, Athlete Leadership Characteristics, and Self Construals.....	34
<i>Table 3.</i> Standardized Path Coefficients for the Influence of Athlete Leader Characteristics and Self-Construals on Team Cohesion.....	35

LIST OF FIGURES

<i>Figure 1.</i> A Conceptual Framework for the Study of Cohesion in Sport.....	36
<i>Figure 2.</i> A Conceptual Model for the Study of Cohesion.....	37
<i>Figure 3.</i> Structural Model: Athlete Leadership Characteristics and Team Cohesion.....	38
<i>Figure 4.</i> Structural Model: Self-Construals and Team Cohesion.....	39

LIST OF APPENDICES

<i>Appendix A.</i> Demographic questionnaire.....	81
<i>Appendix B.</i> Group Environment Questionnaire.....	82
<i>Appendix C.</i> Sport Leadership Behaviour Inventory.....	85
<i>Appendix D.</i> Self-Construal Scale.....	86
<i>Appendix E.</i> CIS contact letter.....	89
<i>Appendix F.</i> Recruitment letter for athletes.....	90
<i>Appendix G.</i> Letter of information to consent to participate in research.....	91

RESEARCH ARTICLE

Introduction

Cohesion is defined as “a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives, and/or for the satisfaction of member affective needs” (Carron, Brawley, & Widmeyer, 1998, p. 213). Inherent in this definition is the notion that cohesion is a key variable in terms of group formation, maintenance, and productivity, which led some researchers to consider cohesion as *the most important* small group variable (Golembiewski, 1962; Lott & Lott, 1965). The importance of cohesion in the study of sport teams has long been recognized by group dynamics researchers (e.g., Brawley, Carron, & Widmeyer, 1987).

Given the importance of cohesion, Carron (1982) advanced an operational framework for the examination of cohesion in sport teams. This linear framework consists of inputs, throughputs, and outputs (see Figure 1). The first component contributing to cohesion are the *inputs*, which is comprised of four categories: environmental factors, personal factors, leadership factors, and team factors. The environmental factors are viewed as the most general category contributing to cohesion, representing the organizational system of the group. The second factor influencing the cohesiveness of a group is personal factors which consist of, but are not limited to; task motivation (i.e., completion of the group task), affiliation motivation (i.e., establishing and maintaining harmonious relationships), and self-motivation (i.e., achievement of personal satisfactions from the group). The third major factor influencing group cohesiveness is categorized as the leadership factor, which consists of four elements: leader behaviour, leadership style, the coach-athlete interpersonal relationship, and the

coach-team relationship (Carron & Chelladurai, 1981; Schachter, Ellertson, McBride, & Gregory, 1951; Schriesheim, 1980). The fourth factor influencing group cohesiveness is the team factor, which includes aspects such as group orientation, group norm for productivity, team stability, the desire for group success, the nature of the task, role involvement, collective efficacy, and group conflict (Carron, 1982; Carron & Eys, 2012).

The second component of the conceptual framework, the *throughputs*, represents the various dimensions used to measure cohesion. These dimensions stemmed from three fundamental assumptions within the group dynamics literature (Carron, Brawley, & Widemeyer, 1998). The first assumption implied that despite being a group property, cohesion can be assessed through the perceptions of individual group members. The second assumption stated that the group and the individual are explicitly distinguishable. This suggests that within groups, each group member's perception of cohesiveness is related to the group as a whole and the degree to which the group satisfies the member's personal needs and objectives. As a result, Carron, Widmeyer, and Brawley (1985) categorized these two cognitions as: *group integration* "which reflects the individual's perceptions about the closeness, similarity, and bonding within the group as a whole, as well as the degree of unification of the group field" (Carron et al., 1998, p. 217), and *individual attractions to the group* "which reflects the individual's perceptions about personal motivations acting to retain him or her in the group, as well as his or her personal feelings about the group" (Carron et al., 1985, p. 217). The third assumption underlying the construct of cohesion, distinguished between task and social-oriented concerns of groups and their members (Carron et al., 1985). *Task orientation* represents the general orientation or motivation toward achieving the group's performance

objectives (Carron et al., 1998). *Social orientation* represents the general orientation or motivation toward developing or maintaining social relationships within the group (Carron et al., 1985). Based on these three assumptions, four dimensions of cohesion were identified: *Group Integration-Task* (GI-T), *Group Integration-Social* (GI-S), *Individual Attractions to the Group-Task* (ATG-T), and *Individual Attractions to the Group-Social* (ATG-S) (see Figure 2). Specifically, GI-T represents individual group members' perceptions of task unity as a whole. GI-S represents individual group members' perceptions of social unity within the group as a whole (Carron et al., 1998). ATG-T represents an individual team member's feelings of personal involvement with the group's task, productivity, and goals. Lastly, ATG-S represents an individual team member's feelings of personal and social acceptance within the group (Carron et al., 1998).

The final component of the conceptual framework, the *outputs*, represents two classes of group cohesion consequences. More precisely, the consequences are classified into two general categories within the model—individual outcomes and group outcomes. Research has examined several individual (performance, e.g., Bray & Whaley, 2001; role clarity, e.g., Eys & Carron, 2001; conformity, e.g., Rovio, Eskola, Kozub, Duda, & Lintunen, 2009; behavioural change, e.g., Stevens & Bloom, 2003; satisfaction, e.g., Tekleab, Quigley, & Tesluk, 2009) and team-level outcomes (performance, e.g., Carron, Colman, Wheeler, & Stevens, 2002; norms, e.g., Patterson, Carron, & Loughhead, 2005; stability, e.g., Terry et al., 2000).

The present study will focus on two of the four inputs proposed in the Carron (1982) model and will examine their relationships with team cohesion. In particular, the

present study will examine the leadership factor of athlete leadership, and the personal factor of an athlete's self-construal in relation to team cohesion.

Loughead, Hardy, and Eys (2006) defined athlete leadership as an athlete who influences a group of team members to achieve a common goal. To date, research examining athlete leadership can be classified into three main categories—the quantity of athlete leaders within teams, the behaviours exhibited by athlete leaders, and the characteristics of athlete leaders. First, curiosity in the sport leadership field has surrounded the quantity of athlete leaders on a team. For instance, Glenn and Horn (1993) suggested most coaches share the belief that teams require a minimum of one or two athlete leaders to motivate and direct their teammates. Contrary to this suggestion, Loughead and Hardy (2005) found that just over one-quarter (i.e., 27%) of teammates served in a leadership role, suggesting that athlete leaders were more than just one or two individuals on a team. Further, Eys, Loughead, and Hardy (2007) examined the relationship between the number of athlete leaders across various leadership functions (i.e., task, social, external) and satisfaction. These results indicated that those who perceived an equal representation of all three leadership functions were more satisfied with their teams' performance. Lastly, Hardy, Eys, and Loughead (2008) found that as the number of athlete leaders increased, perceptions of team communication and team cohesion decreased.

Another area of research has been dedicated to understanding the leadership behaviours of athlete leaders. To date, transactional and transformational leadership behaviours have been used to measure athlete leadership behaviours. Transactional leadership involves an exchange processes between leaders and followers, with followers

receiving direct rewards for their actions (Avolio, 1999). The transactional behaviours commonly assessed in sport leadership literature include, but are not limited to: Training and Instruction (i.e., instructing others in the techniques and tactics of the sport), Democratic Behaviour (i.e., allowing others to participate in decision making), Autocratic Behaviour (i.e., independent decision making), Social Support (i.e., expressing concern for the welfare of others), Positive Feedback (i.e., recognizing and rewarding good performance), and Contingent Reward (i.e., providing rewards for satisfactory performance) (Callow, Smith, Hardy, Arthur, & Hardy, 2009; Chelladurai & Saleh, 1980). Conversely, transformational leadership involves personal, emotional, and inspirational exchanges between leaders and followers, with the goal of developing followers to their fullest potential (Avolio, 1999). The transformational behaviours commonly assessed in athlete leadership literature include: Appropriate Role Modeling (i.e., setting examples for others to follow), Inspirational Motivation (i.e., motivating and energizing others), Intellectual Stimulation (i.e., looking at problems from new angles), Individual Consideration (i.e., paying close attention to the needs of others), Fostering the Acceptance of Group Goals (i.e., promoting focus on common goals), and High Performance Expectations (i.e., ensuring standards are met) (Callow et al., 2009).

Past research regarding transactional leadership has compared the behaviour differences in athlete leaders and their coaches (Loughead & Hardy, 2005). The results of Loughead and Hardy's (2005) study revealed that coaches exhibited Training and Instruction and Autocratic Behaviours to a greater extent than athlete leaders. In turn, athlete leaders exhibited more Social Support, Positive Feedback, and Democratic Behaviours than coaches. Callow et al. (2009) examined the relationship between

transformational athlete leadership behaviours and team cohesion. These results indicated that the transformational leadership behaviours of High Performance Expectations, and Individual Consideration significantly predicted task cohesion. In addition, the leadership behaviour of Fostering Acceptance of Group Goals significantly predicted both task and social cohesion. Similarly, Vincer and Loughhead (2010) examined the influence of transactional athlete leadership behaviours on perceptions of team cohesion. The results revealed that all four dimensions of cohesion were positively related to the athlete leader behaviours of Training and Instruction and Social Support. Furthermore, all four dimensions of cohesion were negatively related to the leadership behaviour of Autocratic Behaviour. Finally, ATG-T was the only dimension of cohesion related to the athlete leader behaviour of Democratic Behaviour.

The final, and also the most limited area of athlete leadership research, has focused on the characteristics of these individuals. For instance, Yukelson, Weinberg, Richardson, and Jackson (1983) examined the characteristics of collegiate athletes rated as high or low leadership status among team members. The participants consisted of 21 athletes from a university baseball team, and 24 athletes from a university soccer team. Participants' perceptions of locus of control, eligibility standing, and coaches' rating of actual performance were assessed and correlated to leadership status. The results indicated that individuals scoring high in leadership status tended to be better performers, upperclassmen, and had a greater internal locus of control than those who were rated low in leadership status.

Although the results of Yukelson et al. (1983) provided some insight into the characteristics of athlete leaders, Glenn and Horn (1993) developed an inventory (i.e.,

Sport Leadership Behavior Inventory; SLBI) that measured specific leadership characteristics of individual athletes. Initially designed as a self-rated inventory, the original version of the SLBI consisted of 25 items, which described various personal characteristics deemed desirable for team leaders. Subsequently, a shortened version of the SLBI containing 11 items was developed for the simplicity of gathering data from peers and coaches (Glenn & Horn, 1993). Both the 25-item and the 11-item versions of the SLBI were used by Glenn and Horn to investigate leadership characteristics in 106 high school female soccer players through the use of three independent measures (i.e., personal, peer, and coach ratings). It was hypothesized that certain psychological characteristics would be predictive of the emergence of athlete leadership. The results indicated that effective athlete leaders possessed specific personality characteristics (e.g., assertive, confident, aggressive, friendly, nurturing, empathetic consistent, organized, responsible), which depicted the athletes' self-leadership image. This study is consistent with a study conducted by Rees (1983) who found that team leaders tended to possess both instrumental (concerned with achieving the group task) and expressive characteristics (concerned with the internal integration of team members). Although these studies demonstrated that athletes possess certain leadership characteristics, the relationship between leadership characteristics and cohesion has yet to be explored.

As for the personal factor of an individual's self-construal, there is a common misconception among those unfamiliar with this domain of research that these two terms (i.e., personality characteristic and self-construal) can be used interchangeably. Although the topic of self-construal is central to an individual's perceptions, evaluations, and behaviours (e.g., Gudykunst et al., 1996; Markus & Kitayama, 1991; Singelis, 1994;

Vohs & Heatherton, 2001), self-construals are of an entirely different nature than personality characteristics. As such, Markus and Kitayama (1991) defined self-construal as “the degree to which an individual sees themselves as separate from others or connected with others” (p. 226). Consequently, self-construals can be classified into two categories: *independent* and *interdependent self-construals* (Markus & Kitayama, 1991). An independent self-construal is often described as a bounded, unitary, stable, self that is separate from the social context. The characteristics of an independent self-construal include an emphasis on: 1) internal abilities, thoughts, and feelings; 2) expressing the self and being unique; 3) promoting one’s own goals; and 4) being direct in communication (Markus & Kitayama, 1991). Conversely, an interdependent self-construal is often described as a flexible, variable, self that is connected to a social context. The characteristics of an interdependent self-construal include an emphasis on: 1) external, public features such as statuses, roles, and relationships; 2) fitting in and belonging; 3) knowing and occupying one’s proper place and acting appropriately; and 4) being indirect in communication and “reading others’ minds” (Markus & Kitayama, 1991).

Despite the abundance of empirical research examining self-construals in cultural psychology, one of the most limited areas of self-construal research rests within the sport domain. For example, Dimmock and Grove (2006) are among the only researchers to directly measure self-construals in relation to sport team preferences. More specifically, these authors measured the extent to which sport team preferences were associated with the way in which individuals define themselves on the basis of relationships with others. The participants of this study consisted of 173 high school student-athletes from a large Australian city. Participants were asked to indicate how many of their family and friends

would prefer one specific sport team over another team. Further, participants were also asked to indicate their own preferences regarding the teams. Using a version of the Relational-Interdependent Self-Construal Scale (Cross, Bacon, & Morris, 2000), which measures the extent to which individuals include close relationships in their self-concepts, the results indicated a non-significant correlation ($r = -.02, p = .76$) between the association of sport team preferences and the way in which individuals define themselves on the basis of relationships with others. A major limitation of this study was associated with the way in which the constructs were measured; it is likely that participants developed their team preferences at different stages, but the questions from the Relational-Interdependent Self-Construal Scale were phrased in the present tense. Unfortunately, limitations in the design of this study offered very little concerning the importance that self-construals may play within the sport context.

Thus, based on theory (Carron, 1982), past athlete leadership characteristic research (Glenn & Horn, 1993), and the shortcomings of self-construal research in sport (Dimmock & Grove, 2006), the purpose of this study was twofold. The first purpose was to examine the relationship between self-rated athlete leadership characteristics and team cohesion. It was hypothesized that athlete leadership characteristics would be related to team cohesion. The second purpose was to examine the relationship between an athlete's self-construal and team cohesion. It was also hypothesized that interdependent and independent self-construals would be related to team cohesion.

Method

Participants

A total of 328 varsity level athletes agreed to participate in this study (i.e., opened the online link to the survey and clicked the “I agree to participate” button). However, 50 participants then decided to close their web browser and as a result were removed from the study due to a lack of data. As such, study participants consisted of 278 athletes from a variety of independent (e.g., golf, track) and interdependent (e.g., basketball, hockey) sport teams within the Canadian Interuniversity Sport (CIS) association (see Table 1). Participants included 122 males, 154 females, and two participants who listed their gender as “other”. Participants ranged in age from 18 to 26 years ($M = 20.65$, $SD = 1.76$) and had played on their current team for an average of 2.4 years ($SD = 1.26$). The majority of participants described themselves as a starter (70.7%). Further, participants self-rated their leadership status on their current team with 25.1% of participants perceiving themselves as a formal athlete leader, 58.3% as an informal athlete leader, and 16.6% as a non-leader.

Measures

Cohesion. Athletes were asked to assess cohesion using the Group Environment Questionnaire (GEQ; Carron et al., 1985). The GEQ (see Appendix B) is an 18-item self-report questionnaire that allows for the evaluation of group members’ perceptions of cohesion along four subscales. The GEQ has a history of demonstrating internal consistency (e.g., Carron, Widmeyer, & Brawley, 2007), as well as content (e.g., Carron et al., 1985), concurrent (e.g., Brawley, Carron, & Widmeyer, 1987), predictive (e.g., Brawley, Carron, & Widmeyer, 1988), and factorial validity (e.g., Carron et al., 1985).

The first dimension of cohesion measured within the GEQ is labeled ATG-T. This dimension represents an individual team member's feelings of personal involvement with the group's task, productivity, and goals. The ATG-T subscale contains four items. A sample item reads, "I do not like the style of play on this team". The second dimension, ATG-S represents an individual team member's feelings of personal and social acceptance within the group. The ATG-S subscale contains five items and a sample item reads, "Some of my best friends are on this team". The third dimension of cohesion is labeled GI-T. The five item GI-T subscale represents individual group members' perceptions of task unity as a whole. A sample item reads, "Our team is united in trying to reach its goals for performance". The fourth and final dimension of cohesion, termed GI-S, represents individual group members' perceptions of social unity within the group as a whole. The GI-S subscale contains four items and a sample item reads, "Members of our team would rather go out on their own, than get together as a team". All items of the GEQ are measured on a 9-point Likert scale that is anchored from *strongly disagree* (1) to *strongly agree* (9). For the purpose of the present study, the two task dimensions and the two social dimensions were combined to provide a task and social cohesion subscale. This is in line with empirical evidence (Leeson & Fletcher, 2005) suggesting that a two-factor model of cohesion along task and social dimensions is plausible. In particular, this distinction between task and social concerns also supports a number of group dynamics researchers who have suggested that these are the two primary orientations for the vast majority of groups (e.g., Carron et al., 1985; Hersey & Blanchard, 1969; Mikalachki, 1969).

The items for each dimension (task, social) were summed and averaged to yield a mean frequency. As such, higher Likert scale scores indicated stronger perceptions of cohesiveness while lower Likert scale scores represented weaker perceptions of cohesiveness. It is important to note that 12 of the original GEQ's 18 items were negatively worded and therefore were reversed coded prior to data analysis.

Athlete leadership characteristics. Athlete leadership characteristics were assessed using the SLBI (Glenn & Horn, 1993). The SLBI (see Appendix C) is an 11-item self-report inventory that provides a measure of the extent to which individual athletes exhibit the identified leadership characteristics (i.e., Determined, Positive, Motivated, Consistent, Organized, Responsible, Skilled, Confident, Honest, Leader, and Respected). For each item, the respondent was requested to indicate on a 7-point Likert scale, how descriptive each characteristic was of them self. The 7-point Likert-type scale is anchored by *never like me* (1) to *always like me* (7). The 11-item version of the SLBI has demonstrated acceptable internal consistency, test-retest reliability, and content validity (e.g., Glenn & Horn, 1993; Moran & Weiss, 2006).

Self-construal. Self-construal was assessed using one of the most frequently used measures to operationalize this construct (Grace & Cramer, 2003), the Self-Construal Scale (SCS; Singelis, 1994). The SCS allows for the evaluation of individuals' thoughts, feelings, and actions that compose independent and interdependent construals of the self. The SCS consists of 24 items categorized into two dimensions: Independent Self-Construals (12 items) and Interdependent Self-Construals (12 items). Specifically, an Independent Self-Construal is defined as a bounded, unitary, stable, self that is separate from the social context. Specifically, the Independent Self-Construal subscale measures

an individual's: 1) internal abilities, thoughts, and feelings; 2) ability to express the self and be unique; 3) desire to promote one's own goals; and 4) directness in communication (Markus & Kitayama, 1991). In contrast, an Interdependent Self-Construal is defined as a flexible, variable, self that is connected to a social context. The Interdependent Self-Construal subscale measures an individual's: 1) external, public features such as statuses, roles, and relationships; 2) desire to fit in and belong; 3) ability to know and occupy one's proper place and act appropriately; and 4) indirectness in communication and ability to "read others' minds" (Markus & Kitayama, 1991). Both of the subscales within the SCS have demonstrated adequate internal consistency values: Independent, $\alpha = .70$; and Interdependent, $\alpha = .74$ (Singelis, 1994). Moreover, there are a number of indicators that the SCS demonstrates content, as well as predictive validity (Singelis, 1994).

The present study modified the items of both the Independent and Interdependent Self-Construal subscales to reflect athlete specific self-construals, by slightly altering the subject of each scale item. For example, the items that contained "my group" were reformed to read "my team". Therefore, a sample item from the Independent Self-Construal subscale reads "My personal identity, independent of my team, is very important to me", while a sample item from the Interdependent Self-Construal Subscale reads "It is important for me to maintain harmony within my team". All items were assessed on a 7-point Likert scale anchored from *strongly disagree* (1) to *strongly agree* (7).

Procedure

After clearance was granted from the University of Windsor's research Ethics Board, the CIS was emailed a description of the study (see Appendix E). Using their

email distribution system, the CIS forwarded a recruitment letter to their athletes informing them of the study, and requesting their participation (see Appendix F). Participants who took part in this study were directed via a website link to an online questionnaire containing demographic questions, the GEQ, SLBI, and the SCS. Before completing the questionnaires, participants read and agreed to a Letter of Information for Consent to participate in research by clicking an “I agree to participate (continue survey)” button (see Appendix G). All participants remained anonymous throughout the process of this study, and all participants’ responses were kept confidential. Each online questionnaire took approximately 10 minutes to complete.

Results

Descriptive Statistics

Data were screened for multivariate outliers, and missing values. Missing data were less than 5% and were deemed to be missing at random (Fox-Wasylyshyn & El-Masri, 2005). Missing data points were replaced using the case mean substitution imputation technique where missing data points were replaced by the mean of each participant’s respective subscale score (Raymond, 1986). Internal consistencies were calculated for each subscale. All subscales demonstrated acceptable internal consistency values, with Cronbach alphas over .70 (Nunnally & Bernstein, 1994). See Table 2 for a detailed description. In addition, bivariate correlations between variables indicated moderate correlations for most variables and all correlations were positive. Means revealed that athletes’ perceptions of their team’s social cohesion ($M = 7.53$ out of 9) were higher than task cohesion ($M = 7.16$ out of 9), while perceptions of their Interdependent Self-Construal ($M = 5.56$ out of 7) were higher than their Independent

Self-Construal ($M = 5.39$ out of 7). Athletes also perceived themselves to possess various leadership characteristics ($M = 5.73$ out of 7) (see Table 2).

Measurement Models

Confirmatory Factor Analyses (CFAs) were conducted using AMOS 21.0 (Arbuckle, 2011) on responses for the GEQ, SLBI, and SCS to ensure that the items and factor structures of these questionnaires were valid (Aroian & Norris, 2005). The fit of the factor model was evaluated by examining various fit indices: Chi-Square goodness of fit statistic (χ^2 ; Byrne, 1994), Comparative Fit Index (CFI; Bentler, 1990), Root Mean Square Error of Approximation (RMSEA; Hu & Bentler, 1999), and Standardized Error of Approximation (SRMR; Bentler, 1995). A non-significant χ^2 and values for CFI greater than .90 represented a reasonable fit, and values greater than .95 demonstrated a good model fit to the data. In addition, RMSEA and SRMR values less than .08 indicated a reasonable fit, while values less than .05 indicated a good model fit (Hu & Bentler, 1999). Generally, a variety of fit indices are used so that the weakness of a particular index is offset by the strength of another (Gonzalez & Griffen, 2001).

Cohesion. The first CFA model examined cohesion as a two-factor model along task (ATG-T, GI-T) and social (ATG-S, GI-S) dimensions. This two-factor model of cohesion demonstrated a good fit ($\chi^2 = .00$, CFI = .95, RMSEA = .04, SRMR = .05) with the appropriate error terms correlated, as indicated by the Modification Indices within the AMOS 21.0 program.

Athlete leadership characteristics. The SLBI model consisted of one latent factor (Athlete Leadership Characteristics), and 11 observed items. The initial CFA run of the SLBI indicated a poor model fit. However, after modifying the model through the

correlation of error terms, the SLBI demonstrated good model fit: $\chi^2 = .07$, CFI = .98, RMSEA = .04, SRMR = .04.

Self-construal. The SCS model included two latent factors (Interdependent Self-Construal, Independent Self-Construal) and 24 observed items. Similar to the previous models within this study, the initial SCS model demonstrated a poor model fit after the initial CFA run. Accordingly, the sequential correlation of error terms produced a good model fit: $\chi^2 = .07$, CFI = .98, RMSEA = .02, SRMR = .05.

Structural Models

For the main data analysis, structural equation modeling (SEM) was conducted using the maximum likelihood method of parameter estimation within the statistical software AMOS 21.0 (Arbuckle, 2011) to examine the relationships within this study. Specifically, two separate structural models were tested: (a) the relationship between self-rated athlete leadership characteristics and team cohesion, and (b) the relationship between athlete self-construals and team cohesion.

Athlete leadership characteristics and team cohesion. In the first model, athlete leadership characteristics were specified as a predictor of Task and Social Cohesion. The model showed a reasonable fit to the data: $\chi^2 = .00$, CFI = .90, RMSEA = .05, SRMR = .08. All factor loadings were significant, $p < .05$. Two significant paths emerged for athlete leadership characteristics and team cohesion (Table 3, Model 1). Specifically, athlete leadership characteristics were positively related to Task (standardized path coefficient = .40) and Social Cohesion (standardized path coefficient = .49). This means that athletes who believed that they possessed high levels of leadership characteristics (e.g., determined, responsible, positive, honest) felt more task and socially cohesive with

their teammates. Squared multiple correlations indicate that 16% of the variance in Task Cohesion and 24% of the variance in Social Cohesion in sport is explained by athlete leadership characteristics (see Figure 3).

Self-construal and team cohesion. The second structural model explored the influence of athletes' Interdependent and Independent Self-Construal on Task and Social Cohesion. The specified model demonstrated a reasonable fit to the data: $\chi^2 = .00$, CFI = .90, RMSEA = .04, SRMR = .07. The structural model revealed four positive pathways between self-construals and team cohesion, two of which were significant ($p < .05$) and two that were non-significant (Table 3, Model 2). Specifically, a significant relationship emerged between Interdependent Self-Construals and both Task (standardized path coefficient = .51) and Social Cohesion (standardized path coefficient = .61). Conversely, a non-significant relationship emerged between Independent Self-Construals and both Task (standardized path coefficient = .06) and Social Cohesion (standardized path coefficient = .04). This means that athletes who felt more connected with their teammates and placed an importance on maintaining roles and relationships, were more task and socially cohesive with their teams. Moreover, athletes who felt disconnected from their teammates and placed a greater importance on promoting their own goals were not related to perceptions of team cohesion. The model indicated that 29% of the variance in Task Cohesion, and 40% of the variance in Social Cohesion in sport is explained by an athlete's Interdependent and Independent Self-Construals (see Figure 4).

Discussion

The purpose of this study was twofold. The first purpose was to examine the relationship between self-rated athlete leadership characteristics and team cohesion. The

results indicated that athlete leaders who viewed themselves as possessing high levels of leadership characteristics felt more task and socially cohesive with their teams. The second purpose was to examine the relationship between athletes' self-construals and team cohesion. The findings indicated that athletes who construed themselves in an interdependent fashion felt task and socially cohesive with their teammates. Additionally, team cohesion was not associated with teammates who construed themselves in an independent fashion.

To the author's knowledge, this study is the first to use the 11-item SLBI as a measurement instrument to assess self-rated athlete leadership characteristics. The original SLBI consisted of 25 items, however a shortened 11-item version was also validated (e.g., Glenn & Horn, 1993; Moran & Weiss, 2006). In the majority of studies that have used the SLBI (e.g., Glenn & Horn, 1993; Moran & Weiss; 2006), athlete leadership characteristics were assessed through the administration of three versions of the inventory resulting in three scores for each athlete—one reflecting a self-rating of athlete leadership, one reflecting the coach's assessment of that athlete's leadership, and one reflecting the average of that athlete's teammates' ratings. The self-rated version of the SLBI used in the Glenn and Horn (1993) and the Moran and Weiss (2006) studies consisted of the original 25 items, while the teammate and coach evaluations consisted of 11 items to minimize questionnaire length. With regards to reliability ratings, it is important to note that although the 11-item version of the SLBI demonstrated strong internal consistency values ($\alpha = .88, .92$; Glenn & Horn, 1993), these values stemmed from teammate and coach ratings respectively. As such, the present study found that the 11-item version of the SLBI demonstrated comparable internal consistency when athletes

self-rated their own athlete leadership characteristics ($\alpha = .82$). In addition to the acceptable internal consistency ratings, past studies found the 11-item version of the SLBI to possess content validity (e.g., Glenn & Horn, 1993; Moran & Weiss, 2006). The present study extended previous research by conducting a CFA and determining that the 11-item SLBI also possessed factorial validity.

It would appear there is strong support for the reliability and validity of the SCS (Singelis, 1994) within the sport context. The items of SCS were slightly modified to suit the athlete population targeted in the present study. Although unique to this area of research, the athlete-specific version of the SCS demonstrated greater internal consistency values (Interdependent Self- Construals, $\alpha = .79$; Independent Self- Construals, $\alpha = .77$) with the athlete population used in the present study than when used with the non-athlete population (Interdependent Self- Construals, $\alpha = .73$; Independent Self- Construals, $\alpha = .69$; Singelis, 1994). Further, the present study also conducted a CFA on the items. The results of the CFA from the current study showed that they were stronger than those reported in the original two-factor SCS measurement model (Singelis, 1994). Thus, the modified athlete-specific version of the SCS has been shown to be a reliable and valid measure within the context of sport.

With respect to the structural models presented in this study, the current study sought to replicate and extend previous research on many fronts. Specifically, the present study replicated previous findings addressing the relationship between athlete leadership characteristics and team cohesion. First, athletes in the present study self-rated their leadership characteristics highly ($M = 5.73$). This is similar to the findings of Moran and Weiss (2006) who also reported high self-rated leadership characteristics ($M = 5.40$) in

their sample. In the Moran and Weiss study, high ratings of athlete leadership characteristics were associated with both task and social cohesion. These results, which were also evident in the current study, support the first hypothesis, and mean that an athlete's leadership characteristics are directly related to their perception of task and social cohesion within their sport teams. The present study also extended the leadership characteristics and cohesion research using the SLBI. That is, previous studies (e.g., Glenn & Horn, 1993; Moran & Weiss, 2006) examined a single sport type (e.g., soccer) using the SLBI, therefore, the present study extended and validated the use of the SLBI within a variety of interdependent and independent varsity team sports. Based on the above findings, it is evident that athlete leadership characteristics are an important aspect of team functioning that contribute to the tendency for team members to stick together and remain united through the accomplishment of their goals, and for personal satisfaction reasons.

As for the model examining Interdependent and Independent Self-Construals and Task and Social Cohesion, the results showed that Interdependent Self-Construals were positively associated with Task and Social Cohesion, while Independent Self-Construals were not significantly related to either Task or Social Cohesion. This means that athletes who consider external team features (e.g., statuses, relationships) and team goals to be important were associated with feelings of involvement in task productivity, social acceptance, and overall task and social unity (Carron et al., 1985). In contrast, those athletes who felt disconnected from their teammates and placed a greater importance on promoting their own goals were not associated with team cohesion. Although the non-significant pathways between Independent Self-Construals and cohesion did not support

the second hypothesis, the significant pathways from Interdependent Self-Construals replicated previous research. Specifically, the results replicated past findings (Oetzel & Bolton-Oetzel, 1997) in that group relational effectiveness, similar in nature to social cohesion, was better explained by Interdependent Self-Construals than group task effectiveness, which is similar in nature to task cohesion. Accordingly, in the present study, Interdependent Self-Construals were positively related to both Task and Social Cohesion however there was a stronger positive relationship for Social Cohesion rather than Task Cohesion. Moreover, the results of the present study also supported past findings (Singelis, 1994) that individuals with a dominant Interdependent Self-Construal were significantly related to group processes (e.g., cohesion). Since, a distinguishing characteristic of an Interdependent Self-Construal (maintaining a connection to others to meet the needs and goals of the group; Markus & Kitayama, 1991a) is very similar to a primary component of cohesion (remaining united in the pursuit of objectives; Carron et al., 1998), it is possible that athletes with a dominant Interdependent Self-Construal act and feel more cohesive within teams. Interestingly, when athletes on a team give priority to their own personal goals over team goals, team cohesion is neither enhanced nor hindered. This lack of relationship between Independent Self-Construals and cohesion could be due in part to a misconception regarding self-construals. In a way, the terms interdependent and independent represent two opposing construals of the self. However, Singelis (1994) demonstrated that these two selves can coexist to varying degrees within individuals, and therefore a very low (non-significant) but positive relationship between Independent Self-Construals and Task and Social Cohesion should have been expected.

The current study is not without its limitations. The first limitation to this study is in regard to the current sample. All participants played for a Canadian university varsity team, and therefore the results of this study cannot be generalized across other countries or to other age groups (e.g., youth sport athletes). In addition, a general rule of thumb with respect to structural equation modelling is that in order to achieve adequate sample size and power, a minimum of 200 athletes are required (Boomsma & Hoogland, 2001). Although this study consisted of a total of 278 athletes, only 25% of them ($n = 74$) labeled themselves as independent sport team athletes. The limited number of independent sport athletes prevented further analysis of the data. For instance, it would have been interesting to separate and compare independent and interdependent sport team athletes and their relationship with independent and interdependent self-construals. For instance, it seems reasonable to assume that athletes with a dominant independent self-construal would by nature be more likely to join an independent team sport, and similarly, athletes with a dominant interdependent self-construal would by nature be more likely to join an interdependent team sport. Consequently, a future direction will be to increase the number of independent sport team athletes in order to conduct the aforementioned analysis. In addition, the current results could have been subjected to what is termed a selection bias. According to Berg and Latin (2004) a selection bias is most likely to occur if the study's participants felt they had the option of declining participation. For instance, the basis of an athlete's option to participate in the current study may indicate a stronger sense of team cohesion than someone who chose not to participate. As such, the final sample of the current study may be biased because it has the potential to systematically over represent certain groups and under estimates others.

A second limitation to the present study was its non-experimental design. Despite the support for the correlational relationships between athlete leadership characteristics and team cohesion, and interdependent self-construals and team cohesion, a conclusion about the causality between these variables cannot be determined. When non-experimental research designs are used, Johnson and Christensen (2000) suggested that there are three necessary conditions that must be met in order to infer causality: (a) two variables must be related (i.e., a relationship or association condition), (b) one of them must precede the second (i.e., temporal antecedence of condition), and (c) the relationship must hold even when the influences of other possible variables of this relationship are eliminated (i.e., the lack of alternative explanation condition or the nonspuriousness condition). Since the design of the present study only supported the first condition listed above, causality of relationships cannot be inferred.

A third limitation to this study is the cross-sectional nature of the data. If athlete leadership characteristics, self-construals, and team cohesion were measured at different points (e.g., over an entire season), these variables might possess different relationships within varsity sport teams (Bosselut, McLaren, Eys, & Heuzé, 2011). Therefore, a longitudinal examination of the variables is needed to further understand the nature of the emergent relationships and to determine if the current results can be generalized to different periods of a sport season.

Nonetheless, the results of this study will provide sport psychology consultants and coaches with empirical evidence on how to make their sport team function more effectively. For instance, team building strategies should be targeted for intervention in order to increase the cohesiveness of teams. Carron and Spink (1993) advanced a

conceptual framework regarding team building with the goal of increasing team cohesiveness. In that framework, the authors advocate that it is important to develop communication and promote a sense of sacrifice in order to enhance perceptions of team cohesion. By increasing the interaction and communication within teammates, leadership characteristics have the potential to emerge and in turn increase levels of team cohesion. Similarly, strategies developed to promote individual sacrifices for the common good of the team, could strengthen the dominance of teammates' interdependent self-construals, ultimately leading to an increase in team cohesion.

In conclusion, the results of the present study provide support that both Task and Social Cohesion partially explain the influence of athlete leadership characteristics and Interdependent Self-Construals within sport teams. Athlete leadership characteristics positively influenced both Task and Social Cohesion however there was a stronger positive relationship between athlete leadership characteristics and Social Cohesion. Similarly, Interdependent Self-Construals were positively related to both Task and Social Cohesion, with a stronger positive association for Social Cohesion. Simply put, athlete leadership characteristics and the way in which they construe themselves are important components of the make-up individual athletes. As such, sport teams, which are comprised of many different types of individual athletes, provide a unique environment in which group processes can be examined. It is hoped that the results of the current study will encourage researchers to examine both athletes' self-construal and their leadership characteristics with potentially other group dynamics variables with the expectation of gaining a better understanding how these constructs impact, not only team cohesion, but other aspects of the team environment.

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TABLES

Table 1

Demographics for Sport Type

Sport	Frequency	Percent
Alpine Skiing	1	.40
Baseball	10	3.60
Basketball	15	5.40
Cross-Country	9	3.20
Curling	4	1.40
Cycling	1	.40
Fast Pitch / Softball	4	1.40
Field Hockey	15	5.40
Football	29	10.40
Golf	9	3.20
Hockey	12	4.30
Lacrosse	3	1.10
Nordic Skiing	1	.40
Rowing	13	4.70
Rugby	17	6.10
Soccer	46	16.60
Squash	1	.40
Swimming	18	6.50
Track and Field	34	12.20
Volleyball	35	12.60
Unknown	1	.40

Table 2

Bivariate Correlations Among Team Cohesion, Athlete Leadership Characteristics, and Self-Concepts

Variable	<i>M</i>	<i>SD</i>	α	1.	2.	3.	4.	5.
1. Task Cohesion (GEQ)	7.16	.87	.72	-				
2. Social Cohesion (GEQ)	7.53	.91	.76	.55**	-			
3. Athlete Leadership Characteristics (SLBI)	5.73	.69	.82	.36**	.33**	-		
4. Interdependent Self-Conceptual (SCS)	5.56	.75	.79	.42**	.38**	.39**	-	
5. Independent Self-Conceptual (SCS)	5.39	.80	.77	.28**	.22**	.56**	.32**	-

Note. ** Indicates correlation is significant at the .01 level. Scores for cohesion variables range from *strongly disagree* (1) to *strongly agree* (9). Scores for athlete leadership variables range from *never like me* (1) to *always like me* (7). Scores for self-construal variables range from *strongly disagree* (1) to *strongly agree* (7).

Table 3

Standardized Path Coefficients for the Influence of Athlete Leader Characteristics and Self-Construals on Team Cohesion

Path	Path Coefficient	<i>p</i> value
Model 1		
Athlete Leader Characteristics and Team Cohesion		
1. Athlete Leader Characteristics → Task Cohesion	.40	***
2. Athlete Leader Characteristics → Social Cohesion	.49	***
Model 2		
Athlete Self-Construals and Team Cohesion		
1. Interdependent Self-Construal → Task Cohesion	.51	***
2. Interdependent Self-Construal → Social Cohesion	.61	***
3. Independent Self-Construal → Task Cohesion	.06	.50
4. Independent Self-Construal → Social Cohesion	.04	.58

Note. *** indicates $p < .001$.

FIGURES

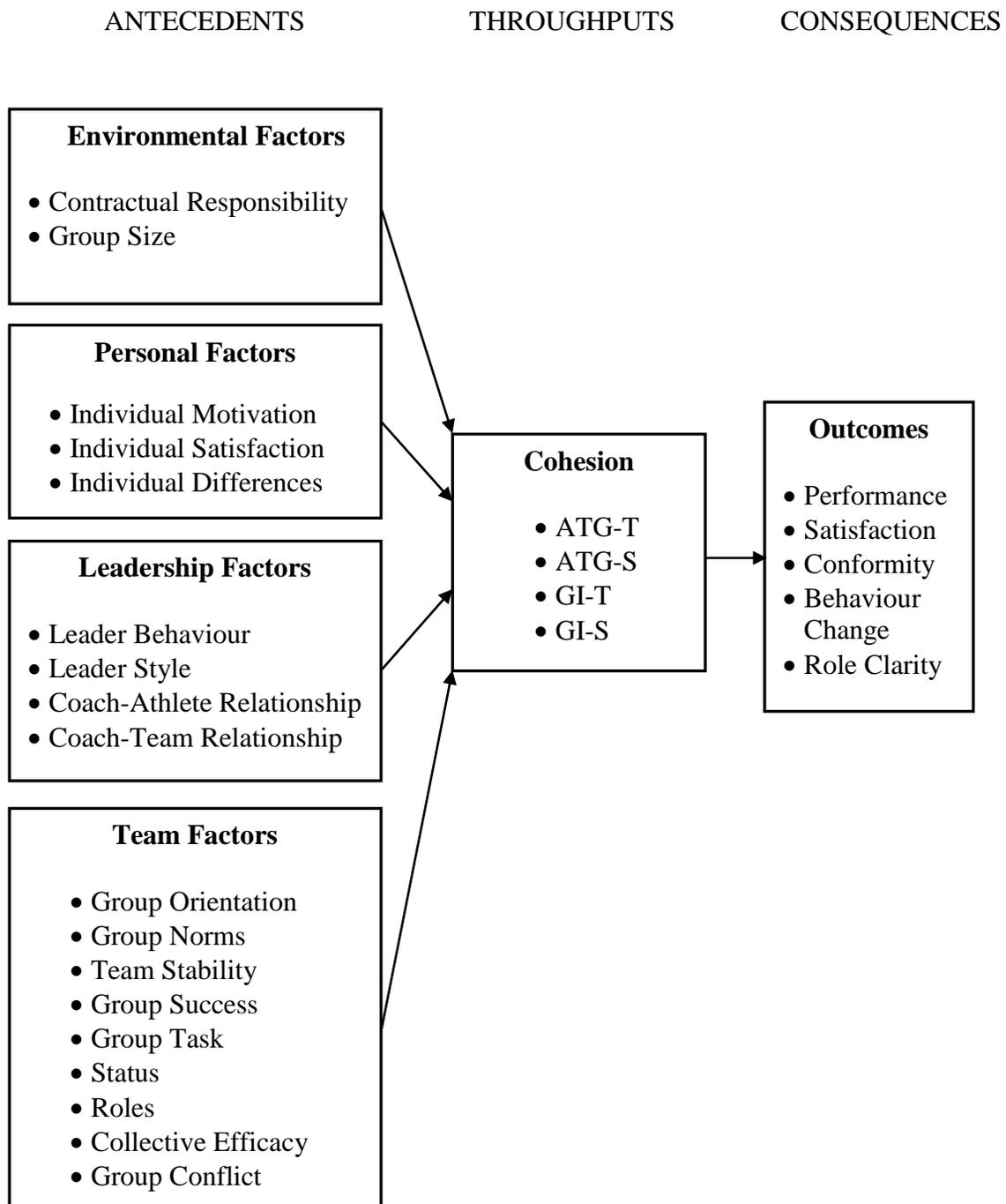


Figure 1. Adapted from “Cohesiveness in sport groups: Implications and considerations”

by A. V. Carron, 1982, *Journal of Sport Psychology*, 4, 123-138.

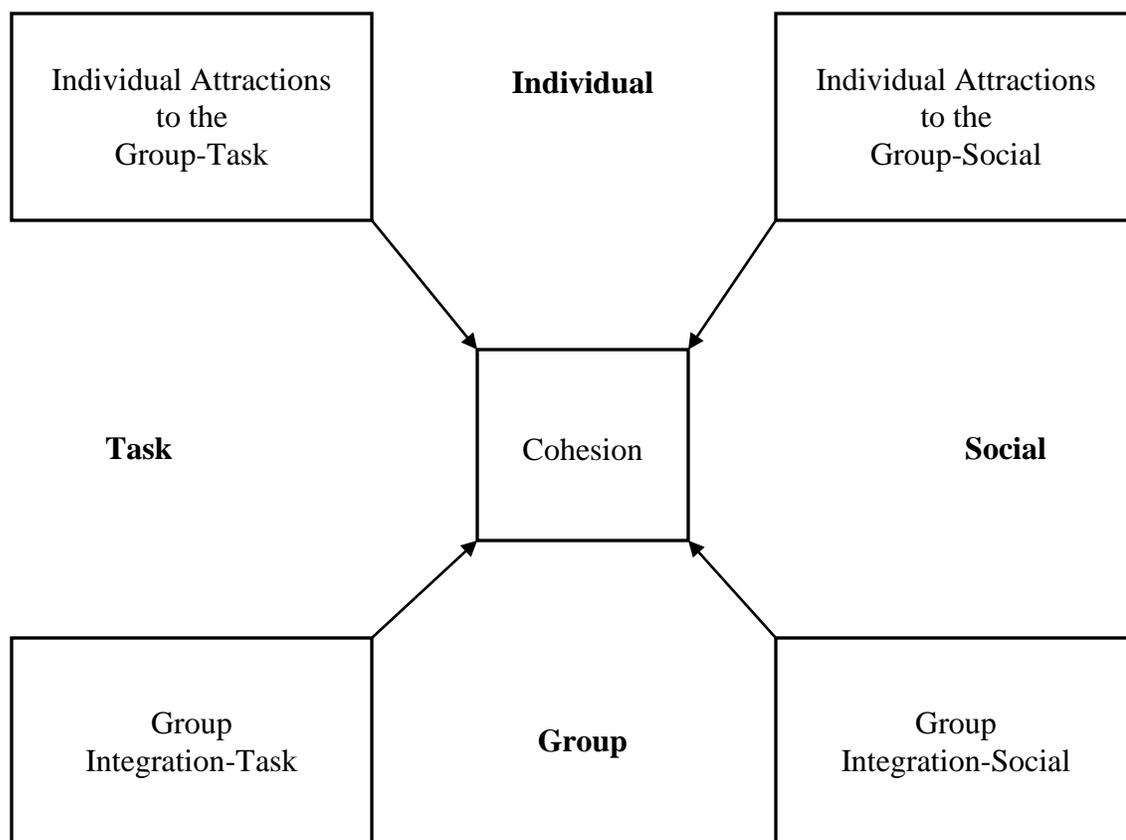


Figure 2. Adapted from “The development of an instrument to assess cohesion in sport teams: The Group Environment Questionnaire” by A. V. Carron, L. R. Brawley, & N. W. Widmeyer, 1985, *Journal of Sport Psychology*, 7, 244-266.

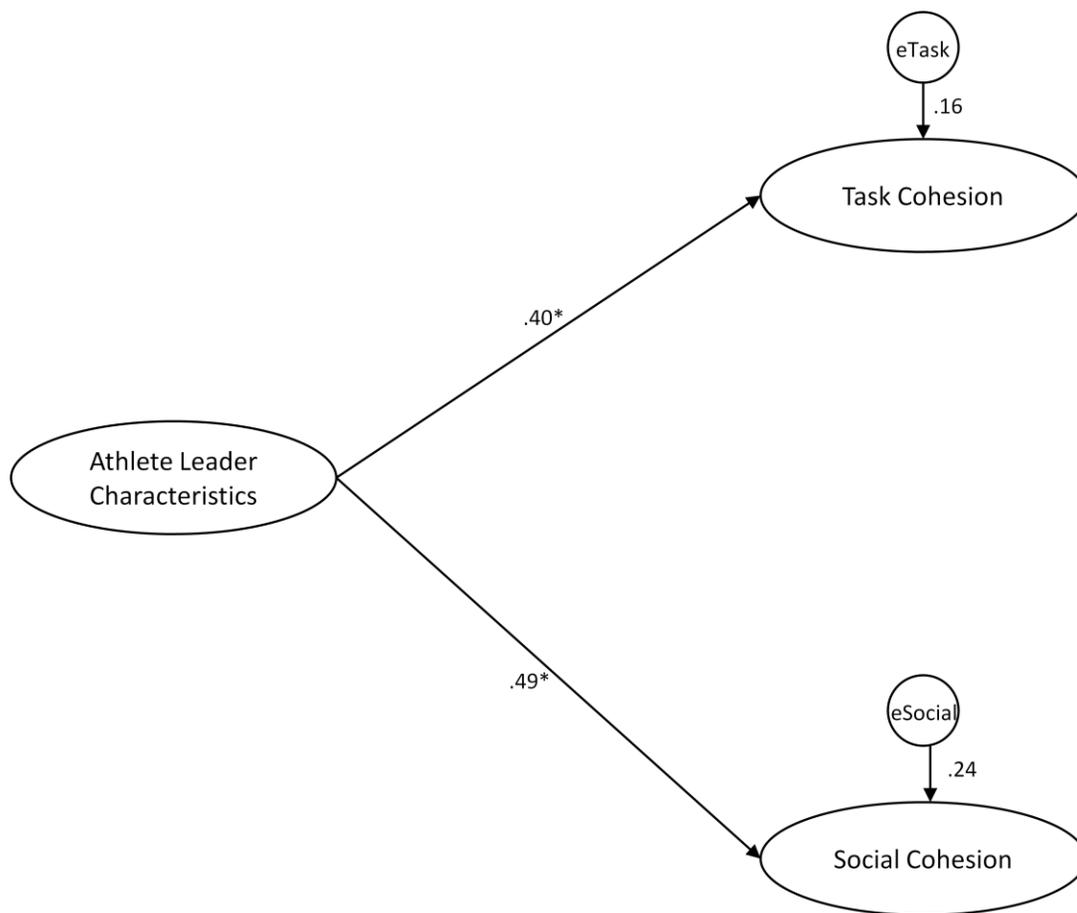


Figure 3. Structural Model with standardized path coefficients across self-rated Athlete Leadership Characteristics and Task and Social Cohesion.

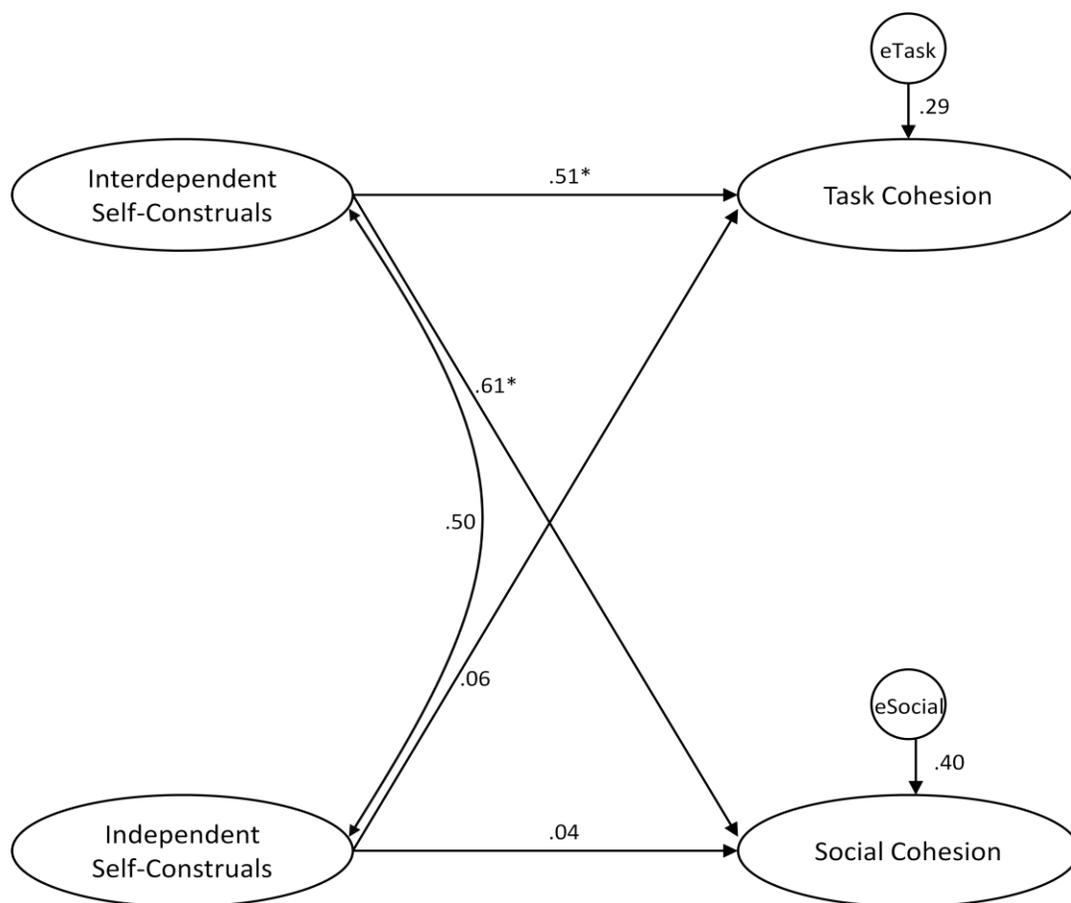


Figure 4. Structural Model with standardized path coefficients across Interdependent and Independent Self-Construals and Task and Social Cohesion.

LITERATURE REVIEW

Introduction

The purpose of the proposed thesis was to examine the relationship between self-rated athlete leadership characteristics, self-construal, and team cohesion. As a result, the review of literature will focus on the areas of cohesion, athlete leadership, and self-construal, respectively.

Cohesion

Within this first section, the concept of cohesion will be examined and defined. Initially, a brief history of the evolution of the cohesion construct and its characteristics will be addressed. Subsequently, a conceptual model of cohesion will be reviewed, followed by an assessment of an evaluative cohesion measurement tool. Finally, the framework for examining cohesion in sport will be discussed.

Definition and Characteristics of Cohesion

French (1941) proposed one of the earliest understandings of cohesion. Although he had not officially defined cohesion at the time, French raised the discussion point that within different groups of individuals, different “group atmospheres” emerge. In particular, French noted the basic definition of a group, in terms of the interdependence of its members, implies the potential existence of disruptive forces. These disruptive forces often result from a conflict of the individual member’s own goals with those of the group. A few years later, Festinger, Schachter, and Back (1950) advanced one of the first operational definitions of cohesion using French’s contention of “disruptive forces”. These researchers defined cohesion as “the total field of forces which act on members to remain in the group” (p. 164). This definition was furthered with the explanation of two distinguishable factors that contribute to cohesion: (1) the attractiveness of the group, and

(2) the extent to which the group supports goals that are important to its members. When Festinger et al. defined cohesion as “the total field of forces”, the implication was that all possible “forces” influencing an individual’s decision to remain a part of the group must be identified and measured by researchers. Noting the impracticality of this definition from a research perspective, later that year Festinger (1950, p. 274) revised his former definition to suggest cohesion was the “the resultant of all the forces acting on members to remain in the group”. Festinger’s “resultant of all the forces” definition implied that only the “forces” relevant to the group must be considered from a measurement standpoint. As noted by Mudrack (1989a) the distinction between “the total field of forces” and “the resultant of all forces” definitions is subtle yet critical when considering the number of group forces requiring the researcher’s attention.

Gross and Martin (1952) criticized the Festinger et al. (1950) definition of cohesion and instead suggested that cohesion was related to the resistance of a group to disruptive forces. In their definition, Gross and Martin insinuated that the construct of cohesion is dependent upon the factors (e.g., bonds) that unite and keep groups together through hardships. Despite the attempts of Festinger (Festinger, 1950; Festinger et al., 1950) and Gross and Martin, there were other definitions of cohesion that were advanced. Pepitone and Kleiner (1957) argued that cohesion should be operationalized as an individual’s attraction to their group; while Lott and Lott (1965) suggested that cohesion was reflective of mutual positive attitudes between group members. Regardless of the definition of cohesion, Mudrack (1989b) contended that research up to this point suffered from a lack of focus on cohesion and either recited incomplete decade-old definitions of cohesion or left the construct entirely undefined. The major shortcoming of these earlier

definitions was that they tended to view cohesion as a unidimensional construct. Cota, Evans, Dion, Kilik, and Longman (1995) argued the unidimensional models of cohesion were problematic due to their lack of generalizability to other groups. Consequently, for decades cohesion was virtually impossible to operationalize (Kipnes, Piper, & Joyce, 2002).

Fortunately for the field cohesion, contemporary researchers have diversified conceptualizations of this construct. Carron (1982) advanced the most widely accepted definitions of cohesion that acknowledged the construct as being multidimensional in nature. Carron initially defined cohesion as “a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives” (p. 124). More than a decade later, this definition was modified to include an affective component. Thus, cohesion was defined as “a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs” (Carron, Brawley, & Widmeyer, 1998, p. 213).

Carron et al.’s (1998) definition highlighted four characteristics important to understanding the nature of cohesion in groups. The first characteristic was that cohesion is a *multidimensional* construct. That is, many factors can cause a group to stick together and remain united. Even seemingly identical groups have factors that may not receive equal weight distributions. For example, one group may be highly united around its task objectives, while another group might be highly united from a social perspective, but lack task unity.

The second characteristic of cohesion is that the construct of cohesion is *dynamic*, thereby having the ability to change over time. Potentially, the factors that caused a group to unite at one point may decrease in worth at a later date. For example, a team may initially assemble over task unity, however as the team develops over time, and members become more familiar with one another, social unity may take priority.

The third characteristic of cohesion that the above definition intended to reflect was the *instrumental* nature of cohesion. All groups form for a specific purpose. Sport teams for instance often form for task-oriented reasons. Even groups that appear to be purely social in nature (e.g., social club) form to fulfill the instrumental need of developing social bonds.

Finally, the fourth characteristic of cohesion is that cohesion has an *affective* dimension. Social relationships among group members may initially exist, or they may develop over time as a result of member instrumental and social interactions. Baumeister and Leary (1995) pointed out that social bonding and the need to belong are fundamental and powerful motives of why individuals belong to groups.

Conceptual Model of Cohesion

Once an operational definition of cohesion was advanced, Carron, Widmeyer, and Brawley (1985) developed a conceptual model to emphasize cohesion's multidimensional nature, stemming from three fundamental assumptions (Carron et al., 1998). The first assumption was that cohesion, although being a group property, can be assessed through the perceptions of individual group members. Individuals within groups are exposed to various task and social related situations, causing them to develop certain beliefs about

the group. Eventually, these personal beliefs integrate to form individual perceptions concerning the group.

The second assumption, based on the group dynamics literature, was that the group and the individual are explicitly distinguishable (Carron et al., 1985). This suggested that within groups each group member's perception of cohesiveness is related to the group as a whole and the degree to which the group has satisfied the member's personal needs and objectives. As a result, Carron et al. (1985) categorized both of these social cognitions. The first, *group integration*, "reflects the individual's perceptions about the closeness, similarity, and bonding within the group as a whole, as well as the degree of unification of the group field" (Carron et al., 1998, p. 217). The second type of cognition, labeled *individual attractions to the group*, "reflects the individual's perceptions about personal motivations acting to retain him or her in the group, as well as his or her personal feelings about the group" (Carron et al., 1985, p. 217).

The third assumption distinguished between task and social-oriented concerns of groups and their members. The *task orientation* represented a general orientation or motivation toward achieving the group's performance objectives (Carron et al., 1998). Conversely, the *social orientation* represented a general orientation or motivation toward developing or maintaining social relationships within the group (Carron et al., 1985).

Consequently based on these three assumptions, Carron et al. (1985) advanced a conceptual model of cohesion that identified four dimensions of cohesion: *Group Integration-Task* (GI-T), *Group Integration-Social* (GI-S), *Individual Attractions to the Group-Task* (ATG-T), and *Individual Attractions to the Group-Social* (ATG-S) (see Figure 2). Specifically, GI-T represents individual group members' perceptions of task

unity as a whole. GI-S represents individual group members' perceptions of social unity within the group as a whole (Carron et al., 1998). ATG-T represents an individual team member's feelings of personal involvement with the group's task, productivity, and goals. Lastly, ATG-S represents an individual team member's feelings of personal and social acceptance within the group.

Measurement of Cohesion

Along with the conceptualization of cohesion, Carron et al. (1985) also developed a multidimensional measurement tool to assess the four dimensions of cohesion. The Group Environment Questionnaire (GEQ), is a self-report questionnaire that allows for a practical evaluation of group members' perceptions of cohesion. The GEQ is an 18-item inventory measured on a 9-point Likert scale that is anchored from *strongly disagree* (1) to *strongly agree* (9). Higher Likert scale scores represent stronger perceptions of cohesiveness. Given 12 of the 18 items are worded negatively, those 12 items must be reversed coded. The GI-T subscale contains five items and an example item would be: "Our team is united in trying to meet our performance goals". The GI-S subscale contains four items and an example would be: "Members of our team would rather not hangout outside of the sport". The ATG-T subscale contains four items and an example item would be: "I do not like the style of play on this team". Lastly, the ATG-S subscale contains five items and an example item would be: "Some of my best friends are on this team".

To date, the GEQ is the most widely used multidimensional measure of cohesion in the field of sport psychology (Eys, Carron, Bray, & Brawley, 2007). Since the development of the GEQ (Carron et al., 1985), confidence in its measurement ability has

continually increased as researchers have tested the inventory's psychometric properties and have noted that the GEQ demonstrates reliability as well as many different forms of validity.

One measure concerning the reliability of a measurement instrument is termed *internal consistency*. Internal consistency is defined as the estimated correlation of a test with any other test of the same length with similar items (Loewenthal, 2001). Also known as the alpha coefficient of reliability, internal consistency is commonly measured using Cronbach's alpha. The acceptability of Cronbach's alpha is often the absolute value of .70 although, .80 or .60 values normally meet acceptable standards (Nunnally & Bernstein, 1994). In its initial development, Carron et al. (1985) found that the GEQ had moderate internal consistency values: GI-T, $\alpha = .70$; GI-S, $\alpha = .76$; ATG-T, $\alpha = .75$; and ATG-S, $\alpha = .64$. Carron, Brawley, and Widmeyer (2002) argued that lower scale internal consistency values should be expected with the GEQ given the dynamic and multidimensional nature of cohesion since it leads team members to answer certain items assessing the same manifestation of cohesion inconsistently. To further justify the lower scale internal consistency measures, Eys et al. (2007) pointed out that although negatively worded items were purposely included in the GEQ to counter response bias due to social desirability, the combination of positively and negatively worded items can significantly reduce a scale's internal reliability. However, the GEQ has shown acceptable internal consistency values in numerous studies (e.g., Brawley, Carron, & Widmeyer, 1987; Li & Harmer, 1996; Patterson, Carron, & Loughhead, 2005; Sénécal, Loughhead, & Bloom, 2008).

As previously noted, an instrument's validity is another confirmation of its measurement credibility. *Content validity* is the most basic form of validity and assesses the degree to which scale items reflect the construct being measured. Generally the content-validation process of an instrument occurs in the instrument's early development. To ensure the GEQ's content validity, the following procedures were undertaken by Carron et al. (1985): (a) a broad literature search was carried out, (b) participants were used as active agents in concept definitions, (c) a conceptual model was relied on, (d) assessments of the item content were made by unbiased experts, and (e) intercorrelations were completed for each item with their own and other scale total scores. Ultimately, Carron et al. (1985) determined that the GEQ had good content validity.

Concurrent validity is demonstrated through the correlation of an instrument (e.g., GEQ) with other instruments that assess similar constructs. If the correlation is moderate (i.e., $r = .35$ to $.60$), concurrent validation is attained (Carron et al., 1998). Brawley, Carron, and Widmeyer (1987) correlated the GEQ with the Sport Cohesiveness Questionnaire (SCQ; Martens, Landers, & Loy, 1971) and the Team Climate Questionnaire (TCQ; Carron, 1986; Grand & Carron, 1982). For team sports, all four dimensions of the GEQ correlated well with the SCQ. The task related scales of the GEQ correlated well with the TCQ. Brawley et al. (1987) therefore concluded that the GEQ possessed concurrent validity.

Predictive validity is considered present if an instrument, such as the GEQ, can be used to predict a theoretically related outcome (Carron et al., 1998). In an overview of research pertaining to the validity of the GEQ, Carron et al. (1998) exposed multiple studies that specifically demonstrated the GEQ's predictive validity. For example, Gross

and Martin (1952) argued that the most conceptually accurate definition of cohesion is the group's resistance to disruption. Accordingly, Brawley, Carron, and Widmeyer (1988) empirically examined the group resistance to disruption-cohesion relationship. This study demonstrated predictive validity as the results supported the notion that athletes expressing high perceived cohesion saw their team as more resistant to disruption than athletes expressing low perceived cohesion.

Lastly, *factorial validity* was used to ensure that the four GEQ dimensions (GI-T, GI-S, ATG-T, and ATG-S) and their items were distinguishable (Carron et al., 1998). One of the studies in which the factorial validity of the GEQ was supported was conducted by Carron et al. (1985). The factor analysis chosen was principle factoring with oblique rotation. The results of this study indicated that the four groupings of variables that emerged corresponded with the four factors proposed in the conceptual model. In a separate study, Li and Harmer (1996) examined intercollegiate athletes to determine the extent to which a four-factor first-order structure (i.e., GI-T, GI-S, ATG-T, and ATG-S) and a two-factor second-order structure (representing task and social orientation) established factorial validity. The findings showed that the four-factor first-order structure is the best fit for the sample, reinforcing the theoretical model of the multi-dimensional group cohesion construct as proposed by Carron et al. (1985).

Framework for the Study of Cohesion in Sport

Carron (1982) advanced an operational framework for the examination of cohesion in sport teams. The Carron conceptual framework is structured in a linear fashion and encompasses inputs, throughputs, and outputs (see Figure 1). The inputs are considered the *antecedents* of group cohesiveness, the *throughputs* represent the types of

cohesiveness present in sport teams, and the outputs are the *consequences* of group cohesiveness. The inputs or antecedents contributing to cohesion in a sport team are classified into four categories: environmental factors, personal factors, leadership factors, and team factors. The most general of the aforementioned factors contributing to cohesiveness are the environmental factors. The two main types of environmental factors are: contractual responsibility and organizational orientation. Contractual responsibility refers to the eligibility and contractual obligations in existence with that particular sport, team, or member. In turn, organizational orientation acknowledges the fact that all organizations are comprised of different members. Therefore, organizational orientation contributes to the amount of underlying task and social cohesiveness within the team.

The second contributing factor to group cohesiveness has been categorized as personal factors. Bass (1962) stated that three personal factors mediate cohesion: individual orientation, individual satisfaction, and individual differences. Primarily, individual orientation refers to an individual's motivation toward the completion of the group's task, their establishment of relationships within the group, and their achievement of personal satisfaction from the group and its activities. Individual satisfaction is the second type of personal factor. Martens and Peterson (1971) proposed a circular relationship between cohesion, performance, success and satisfaction. Specifically, the cohesiveness within a group contributes to effective team performance, which ultimately contributes to success and satisfaction. The third type of personal factor is labeled individual differences. Individual differences are viewed as moderators of cohesiveness and can include differences in the participant's sex, race, religion and socioeconomic status.

The third major factor influencing group cohesiveness is categorized as the leadership dimension (Carron & Chelladurai, 1981). There are four leadership factors that influence group cohesiveness: leader behaviour, leadership style, the coach-athlete interpersonal relationship, and the coach-team relationship (Carron & Chelladurai, 1981; Schachter, Ellertson, McBride, & Gregory, 1951; Schriesheim, 1980).

The final factor influencing cohesion is the team. The team factors consist of variables such as group orientation, group norm for productivity, team stability, the desire for group success, the nature of the task, status, role involvement, collective efficacy, and group conflict (Carron, 1982; Carron & Eys, 2012). The first team factor to be discussed is group orientation (Homans, 1951; Zander, 1971). Group orientation refers to the different types and amount of task and social forces acting upon a team. The second team factor is termed group norm for productivity (Schachter et al., 1951). Similar to most norms, the group norm for productivity differs between groups and is cyclical in nature; the presence or lack of a productivity norm is associated with the development or deterioration of team cohesion respectively. In turn, the resultant state of cohesiveness contributes to increased or decreased group commitment to the norm for productivity (Carron, 1982). The third team factor contributing to team cohesiveness is team stability. Team stability represents the positive relationship between the duration of time team members have remained together and the greater opportunity for social and task cohesiveness to develop (Carron, 1982). The fourth team factor, initially proposed by Zander (1971), is the desire for group success. Zander suggested that the desire for group success is most deeply aroused in a highly cohesive unit. The fifth team factor contributing to group cohesiveness is the nature of the group task (Carron & Chelladurai,

1981). Carron and Chelladurai (1981) proposed that the group task is based on the degree to which performance interdependence is required. Therefore, the group task should differ among sports and among teams. The sixth team factor contributing to team cohesiveness is the status of individual team members (Carron & Eys, 2012). For example, athletes with a starting status often see the team as being both, more socially and task cohesive (Granito & Rainey, 1988; Gruber & Gray, 1982). The next factor contributing to team cohesiveness is role involvement. For example, Eys and Carron (2001) found that role ambiguity was negatively related to task cohesion. Another factor contributing to team cohesiveness is collective efficacy. Various studies have indicated that as perceptions of cohesion are increased, collective efficacy is also increased (e.g., Kozub & McConnell, 2000; Spink, 1990). The final factor contributing to team cohesiveness is group conflict. Sullivan and Feltz (2001) showed that constructive conflict was positively correlated with all aspects of cohesion, while destructive conflict, was negatively related to task cohesion.

In regards to the outputs or consequences that are influenced by cohesion, Carron (1982) classified them into two general categories within the conceptual model (i.e., individual outcomes and group outcomes). The individual and group outcomes found to be influenced by the degree of cohesiveness present are: performance, satisfaction, conformity, behaviour change, and role clarity. Both the individual and team outcomes can further be categorized by their actual and relative measures.

Athlete Leadership

The second section of this literature review will define the construct of athlete leadership through the examination of its characteristics. Next, models for the study of

leadership in sport will be explored, followed by an assessment of athlete leadership evaluative measurement tools. Finally, athlete leadership research that has been conducted to date will be reviewed.

Athlete Leadership Definition and Characteristics

Blackmar (1911) advanced one of the earliest definitions of leadership, describing leadership as “the centralization of effort in one person as an expression of power in all” (p. 626). As indicated by this definition, Blackmar believed leaders to be the center, or the focus, of all group processes. Years later, Redl (1942) furthered Blackmar’s “centralization” definition by describing leadership as a “role” that is taken on by a group member who is central to the group’s formation and relationships. Many decades later, Mumford (1986) suggested that any definition of leadership should contain an “effective component” noting that leadership should influence “goal attainment”. Despite the efforts of the aforementioned researchers, as well as the countless others who attempted to define the construct of leadership, a clear, consistent, and operational definition was lacking for multiple decades (Bass & Bass, 2008).

Northouse (2001) evaluated multiple definitions of leadership, extracting four common characteristics fundamental to this construct: 1) leadership is a process; 2) leadership involves influence; 3) leadership occurs within a team context; and 4) leadership involves goal achievement. These four features of leadership were the foundation upon which Northouse conceptualized his definition of leadership as “a process whereby an individual influences a group of individuals to achieve a common goal” (p. 3).

Drawing upon the Northouse (2001) definition, Loughhead, Hardy, and Eys (2006) were the first group of sport researchers to define athlete leadership as “an athlete occupying a formal or informal role who influences team members to achieve a common goal” (p. 144). Defined in this manner, all leadership restrictions are dissolved. That is, leadership is available to formal leaders (e.g., team captains) as well as informal leaders (e.g., team members) (Northouse, 2001).

Theories and Models for the Study of Leadership in Sport

Several theories and models have been advanced to guide the examination of leadership in sport to date. Chelladurai (1993) proposed a *Multidimensional Model of Leadership* (MML) which was commonly used in the past to study coaching leadership in sports. More recently however, the MML has been adapted to study athlete leadership in sport. The MML is a linear model composed of antecedents, leader behaviours, and consequences. The antecedents influence leader behaviour, and include factors such as situational, leader, and team member characteristics. Situational characteristics pertain to specific demands of the situation (e.g., type of task or group goals). Leader characteristics are personal distinctions, which include personality, experience, and ability in sport. Lastly, member characteristics consist of team members’ personal characteristics such as age, cultural background, and maturity of the athlete.

The throughputs of the MML focus on three types of leader behaviours: required, preferred, and perceived (Chelladurai, 1993). Required behaviours are behaviours that are necessary for the leader to engage in and are directly influenced by the antecedents of situational and member characteristics. Also influenced by the antecedents of situational and member characteristics are the preferred leader behaviours, which consist of

behaviours that subordinates (e.g., team members) desire their leader to engage in. Lastly, perceived behaviours are those behaviours in which the leader actually engages. These behaviours are influenced by the antecedent of leader characteristics, and the leader behaviours that are required and preferred.

Chelladurai's (1993) conceptual model also summarizes two consequences for the study of leadership in athletics: team member performance and satisfaction. Often the satisfaction expressed by athletes is related to their personal and team performance. This satisfaction is dependent upon the degree to which performance has reached or has failed to reach expected levels, bringing to light another important component of Chelladurai's conceptual model; the feedback loops. These loops indicate that the outcomes or consequences provide feedback to the leader, which in turn influence future leader behaviours. More recently, the examination of leadership behaviours in sport has expanded the original list of outcomes to include: intention to return (Spink, 1998), athlete burnout (Vealey, Armstrong, Comar, & Greenleaf, 1998), commitment and motivation (Andrew & Kent, 2007; Todd & Kent, 2004), skill development (Alfermann, Lee, & Würth, 2005), and cohesion (Vincer & Loughhead, 2010).

Several years after Chelladurai's (1993) conceptualization of the MML, Avolio (1999) advanced a *Full Range Leadership Theory* (FRLT) through the combination of two of the most popular leadership theories in organizational psychology: transactional and transformational leadership. Transactional leadership can be defined as an exchange process between leaders and followers, where the followers receive direct rewards or repercussions for their work. In contrast, transformational leadership involves a personal, emotional, and inspirational exchange process between leaders and followers, with the

ultimate goal of developing the followers to their fullest potential (Avolio, 1999). Research has shown that both transactional and transformational leadership behaviours are effective in sport (e.g., Callow, Smith, Hardy, Arthur, & Hardy, 2009; Loughhead & Hardy, 2005; Price & Weiss, 2011). As such, Avolio theorized that the most effective form of leadership is displayed using a combination of transformational and transactional leadership behaviours. Specifically, the FRLT suggests that every leader demonstrates a full range of leadership behaviours to an extent. The FRL model suggests that non-leadership is considered the most passive and ineffective leadership behaviour. Non-leadership behaviour is viewed as a failure to lead, often representing the absence of productive leadership behaviours (Avolio, 1999). Transactional leadership is believed to be a more active and effective form of leadership than non-leadership behaviours, however transformational leadership is believed to be the single most effective form of leadership behaviour. In summary, the FRLT has the underlying assumption that transformational leadership, is built off of transactional leadership behaviours (Avolio, 1999).

Measurement of Athlete Leadership

The Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980) was one of the first measures of leadership in sport. Specifically, the LSS was developed in order to systematically study transactional leadership behaviours in sport (Chelladurai & Saleh, 1980). Originally designed to assess coaching behaviours, the LSS was later modified to measure athlete leadership behaviours by slightly altering the subject of each survey item. For example, the items that contained “my coach” were reformed to read “the athlete leader(s) on my team” (Loughhead & Hardy, 2005). This modified version of the LSS

assesses the same five dimensions of athlete leader behaviours as the coaching version: Training and Instruction (13 items), Democratic Behaviour (9 items), Autocratic Behaviour (5 items), Social Support (8 items), and Positive Feedback (5 items). Training and Instruction examines an athlete leader's behaviour that is aimed at improving team members' performance by emphasizing hard, strenuous training. Democratic Behaviour assesses the extent to which the athlete leader allows team member participation in decisions regarding team goals, practice methods, and game strategies. Autocratic Behaviour assesses behaviour that involves the athlete leader's independence in decision making. Social Support assesses behaviour characterized by the athlete leader showing concern for the welfare of their team members. Positive Feedback assesses athlete leader behaviour that reinforces team members by recognizing and rewarding their good performance (Chelladurai & Saleh, 1980). Responses on the modified and original version of the LSS for athlete leaders are measured on a five-point Likert scale that is anchored from *never* (1) to *always* (5). The modified version of the LSS has not only produced acceptable internal consistency values but it has also demonstrated factorial validity. Specifically, both Loughead and Hardy (2005) and Vincer and Loughead (2010), reported acceptable internal consistency values for all five leader behaviours respectively: Training and Instruction, $\alpha = .87, .88$; Democratic Behaviour, $\alpha = .81, .79$; Autocratic Behaviour, $\alpha = .75, .74$; Social Support, $\alpha = .86, .86$; and Positive Feedback, $\alpha = .85, .84$. Moreover, Vincer and Loughead also conducted a confirmatory factor analysis to examine the factorial validity of the five-factor model (i.e., Training and Instruction, Positive Feedback, Social Support, Democratic Behaviour, and Autocratic Behaviour). Hu and Bentler (1999) describe a model's fit as reasonably good when values are close to

.95 or greater for Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI), and close to or lower than .05 for the Root Mean Square Error of Approximation (RMSEA). As such, the five factor model provided a reasonably good fit to the data: CFI = .99, TLI = .98, and the RMSEA = .05.

While the LSS is used to measure transactional athlete leadership behaviours, the Differentiated Transformational Leadership Inventory (DTLI; Hardy et al., 2010) is used to examine leadership behaviours from primarily a transformational perspective. The DTLI was developed using two inventories from organizational psychology: the Transformational Leadership Inventory (TLI; Podsakoff, Mackenzie, Mooreman, & Fetter, 1990) and the Multifactor Leadership Questionnaire (MLQ5-X; Bass & Avolio, 1995). Originally designed for the military setting, the DTLI was modified to measure athlete leadership behaviours by altering the subject of each survey item. For example, the items that contained “my section corporal” were changed to “my team leader / captain” (Callow et al., 2009). Further, Callow et al. (2009) deleted four items not related to sport from the original version of the DTLI (e.g., believes each individual is crucial to the success of the section) and added nine items (e.g., praises athletes when they show improvement). Consequently, the modified version of the DTLI is a 31-item inventory that is used to measure six dimensions of transformational leader behaviour and one transactional leader behaviour: Appropriate Role Modeling (5 items), Inspirational Motivation (4 items), Intellectual Stimulation (4 items), Individual Consideration (4 items), Fostering the Acceptance of Group Goals (3 items), and High Performance Expectations (5 items) measure transformational leadership, while Contingent Reward (6 items) measures transactional leadership. Appropriate Role Modeling assesses leader

behaviours that set examples consistent with the leader's values for other team members to follow. Inspirational Motivation examines behaviour aimed at developing, articulating, and inspiring others. Intellectual Stimulation examines leader behaviour that challenges followers to re-examine their performance from a different perspective. Individual Consideration measures leader behaviours that recognize and take into consideration individual differences of followers. Fostering the Acceptance of Group Goals assesses leader behaviour aimed at promoting cooperation among followers and urges them to work together toward a common goal. High Performance Expectations measures leader behaviour that demonstrates expectations for performance excellence on part of the followers. Contingent Reward examines leader behaviour where positive reinforcement is provided to followers in return for appropriate follower behaviour. Accordingly, all 31-items of the DTLI are measured on a 5-point Likert scale anchored by *not at all* (1) to *all of the time* (5).

To date, the DTLI is still in its early stages of development however, Callow et al. (2009) found acceptable internal consistency values for five of the six transformational leadership dimensions measured. Specifically, the only leadership behaviour that fell just below the .70 guideline (Nunally & Bernstein, 1994) was Individual Consideration ($\alpha = .66$). As such, the five transformational leadership behaviours that had alpha coefficients greater than .70 were: Appropriate Role Modeling, $\alpha = .81$; Inspirational Motivation, $\alpha = .75$; Intellectual Stimulation, $\alpha = .82$; Fostering the Acceptance of Group Goals, $\alpha = .73$; and High Performance Expectations, $\alpha = .86$. The transactional dimension of Contingent Reward also had an acceptable internal consistency, $\alpha = .82$. In addition, the results of the Callow et al. study supported the factorial validity of the full seven-factor model in an

interactive sport setting. Specifically, the full model revealed a good fit according to the Hu and Bentler (1999) guidelines with a RMSEA = .05 and CFI = .98.

Another inventory used in athlete leadership research is the *Sport Leadership Behavior Inventory* (SLBI; Glenn & Horn, 1993), which has been used to measure the leadership behavioural tendencies or characteristics of individual athletes (Glenn & Horn, 1993). To begin the development of the SLBI, Glenn and Horn generated a set of 104 words describing personal characteristics associated with leadership literature from both sport and non-sport contexts. This list of 104 words was then reviewed by sport studies specialists who were asked to rate each word based on its appropriateness, comprehensiveness, and descriptiveness. Considering these ratings, Glenn and Horn reduced the original list to 46 items. Next, each of the 46 items were rated by coaches and athletes based on how desirable that characteristic would be for a team leader to possess. Finally, 19 items were selected from this procedure to be included in the SLBI. Consequently, the original version of the SLBI consists of 25 items, 19 of which describe various personal characteristics deemed desirable for team leaders, and six of which are filler items. Subsequently, a shortened version of the SLBI containing only 11 items was developed so that ratings of each athlete's leadership tendencies could be more easily obtained (Glenn & Horn, 1993). The shortened version of the SLBI presents participants with 11 descriptors of leadership (i.e., Determined, Positive, Motivated, Consistent, Organized, Responsible, Skilled, Confident, Honest, Leader, and Respected). Similar to the original 25-item version of the SLBI, the shortened 11-item version also includes a response format on a 7-point Likert scale anchored by *never like me* (1) to *always like me* (7). The SLBI can be used by one's self, peers, coaches, or all three parties concurrently

to measure the exhibited identified leadership characteristics of individual team members. Based on the individual doing the evaluating, the Likert scale responses can be presented differently. For example, when rating a teammate, responses range from, *never like him / her* (1) to *always like him / her* (7). This instrument has demonstrated acceptable test-retest reliability and content validity in both the 25-item and shortened 11-item version (Glenn & Horn, 1993; Moran & Weiss, 2006). Specifically in the Glenn and Horn study, the internal consistency of leadership behaviour was assessed from three independent perspectives: self-ratings (25-item SLBI), $\alpha = .91$; peer ratings (11-item SLBI), $\alpha = .88$; and coach ratings (11-item SLBI), $\alpha = .92$. In addition, to the high internal consistency values for all three scales, Glenn and Horn found a high degree of consistency between the longer and shorter versions of the SLBI ($r = .96$).

Athlete Leadership Research

The research surrounding athlete leadership can be presented into three main categories: 1) the characteristics of athlete leaders, 2) the quantity of athlete leaders within teams, and 3) the behaviours exhibited by athlete leaders.

Characteristics of athlete leaders. Athlete leaders can occupy both formal (e.g., team captain) and informal roles (e.g., peer mentor) within their teams (Loughead et al., 2006). Also, formal athlete leaders are the most recognized and identified team leaders (Loughead et al., 2006). Moreover, athlete leaders are commonly veteran players who occupy starting roles (Loughead et al., 2006) and central positions on a team (Glenn & Horn, 1993). The starting and central positions in which athlete leaders play, indicate that being a skilled performer is another important characteristic of athlete leadership. In turn, these skilled performers often have a higher internal locus of control (Yukelson,

Weinberg, Richardson, & Jackson, 1983). Additionally, the results from a study by Glenn and Horn (1993), confirmed that effective team leaders possess specific personality characteristics (e.g., assertive, confident, aggressive, friendly, nurturing, empathetic consistent, organized, responsible), 19 of which are descriptors found within the original version of the SLBI. The final distinguishing characteristics of athlete leaders are high levels of intrinsic motivation and perceived behavioural conduct (Price & Weiss, 2011).

Quantity of athlete leaders. For many years, a curiosity in the sport leadership field has examined the number of athlete leaders on a team. For instance, most coaches share the belief that teams require a minimum of one or two athletes to motivate and direct their teammates (Glenn & Horn, 1993). By definition, leadership has the potential to be found within all teammates therefore, the number of leaders on a team cannot be restricted. As such, Loughhead and Hardy (2005) conducted a study to examine the quantity of athlete leaders on a team. The participants consisted of 238 athletes from a wide range of independent (e.g., track and field) and interdependent (e.g., ice hockey) sport teams. Results indicated that 65.1% of athletes believed that both formal and informal athlete leaders act as providers of team leadership. Taken together, these athletes perceived that just over one-quarter (i.e., 27%) of their teammates served in a leadership capacity.

The quantity of athlete leaders on a team has also been examined in relation to various aspects of the team environment. For example, Eys, Loughhead, and Hardy (2007) examined the relationship between individual perceptions of athlete leader dispersion across task (leadership aimed at achieving team goals), social (leadership that promotes trust and support of teammates), and external (leadership that promotes the team within

the community) leadership functions and satisfaction. Participants included 218 intercollegiate athletes from a variety of interactive sport teams. The results indicated that those who perceived all three leadership functions to be equally represented within their team, were more satisfied with their team's performance than those who perceived an unequal representation of leadership functions. Furthermore, Hardy, Eys, and Loughhead (2008) examined the association between individual team members' perceptions of athlete leadership dispersion and team cohesion. Participants consisted of 254 Canadian university interactive team sport athletes. The results indicated that a negative relationship not only exists between the number of task leaders and communication, but also between the number of task leaders and task cohesion. As a whole, the findings suggest that enhanced perceptions of communication and more effective task cohesion could be established through the incorporation of a small core of task team leaders within the respective teams.

Athlete leadership behaviours. Within the sport leadership domain, a research focus has been dedicated to the behaviours of athlete leaders. For instance, Loughhead and Hardy (2005) compared the transactional leadership behaviours between athlete leaders and their coaches. The participants consisted of 238 athletes from 15 teams representing a wide range of independent and interdependent team sports. Using the LSS, the results revealed that coaches exhibited Training and Instruction and Autocratic Behaviours to a greater extent than athlete leaders. In turn, athlete leaders exhibited more Social Support, Positive Feedback, and Democratic Behaviours than coaches.

Callow et al. (2009) measured athlete leader behaviours primarily from a transformational perspective. More specifically, the relationship between

transformational athlete leadership behaviours and team cohesion amongst 309 standard club ultimate Frisbee players was examined. The results indicated that the transformational leadership behaviours of High Performance Expectations, and Individual Consideration significantly predicted task cohesion. In addition, the leadership behaviour of Fostering Acceptance of Group Goals significantly predicted both task and social cohesion. Conversely, Vincer and Loughhead (2010) examined the influence of transactional athlete leadership behaviours on perceptions of team cohesion. Three hundred and twelve athletes from 25 interdependent varsity and club level teams participated in this study. All athletes completed the GEQ to assess cohesion, and the LSS to assess athlete leadership behaviours. The results revealed that all four dimensions of cohesion were positively related to the athlete leader behaviours of Training and Instruction and Social Support. Furthermore, all four dimensions of cohesion were negatively related to the leadership behaviour of Autocratic Behaviour. Finally, ATG-T was the only dimension of cohesion related to the athlete leader behaviour of Democratic Behaviour.

Holmes, McNeil, Adorna, and Procaccino (2008) compared the preferences and perceptions of male and female collegiate athletes regarding athlete leadership behaviours. A revised version of the LSS was used to measure athlete leadership in two contexts: on and off the field. The results revealed that certain preferences of athlete leadership behaviour were common to both men and women, while other preferences were gender specific. In particular, both male and female athletes preferred their athlete leaders to be hard working on the field. However, male athletes preferred more Autocratic Behaviours in their athlete leaders than women.

Self-Construals

The final section of this literature review will examine the concept of self-construals. Initially, self-construals will be defined through the exploration of its characteristics. Next, an assessment of the main evaluative self-construal measurement tool will be discussed. Finally, research on self-construals will be provided.

Self-Construal Definition and Characteristics

Self-construals are of fundamental importance to the way people react and process information related to the social environment. As originally defined by Markus and Kitayama (1991), self-construals are “the degree to which an individual sees themselves as separate from others or connected with others” (p. 226). Defined in this manner, self-construal is conceptualized as a constellation of thoughts, feelings, and actions concerning the self as distinct from others, or as a part of an encompassing social relationship (Singelis, 1994). The most widely used conceptualization of self-construal is Markus and Kitayama’s distinction between *independent* and *interdependent* construals of the self. An independent self-construal is defined as a bounded, unitary, stable, self that is separate from social context. The characteristics of an independent self-construal include an emphasis on: 1) internal abilities, thoughts, and feelings; 2) expressing the self and being unique; 3) promoting one’s own goals; and 4) being direct in communication (Markus & Kitayama, 1991). In contrast, an interdependent self-construal is defined as a flexible, variable, self that is connected to a social context. The characteristics of an interdependent self-construal include an emphasis on: 1) external, public features such as statuses, roles, and relationships; 2) fitting in and belonging; 3) knowing and occupying

one's proper place and acting appropriately; and 4) being indirect in communication and "reading others' minds" (p. 230; Markus & Kitayama, 1991).

Early researchers commonly presented the independent and the interdependent self as mutually exclusive dichotomies. However, more recent conceptualizations, have evolved from Markus and Kitayama's (1991) ideas, to incorporate the view that cognitions bound to the self are multifaceted – activated some of the time and dormant others (e.g., Bhawuk & Brislin, 1992; Gudykunst et al., 1996; Matsumoto, 1999; Singelis, 1994). The coexistence of two well-developed self-construals allows individuals to modify their behaviour according to their environmental context (Bhawuk & Brislin, 1992). Singelis (1994) termed this multifaceted idea of self, the "dual self" (p. 581).

Measurement of Self-Construals

Once self-construals had been formally defined and conceptualized, Singelis (1994) developed a measurement tool to assess the thoughts, feelings, and actions that compose independent and interdependent construals of the self. This self-report instrument, known as the Self-Construal Scale (SCS), allows for practical evaluation of individuals' self-construal perceptions. The initial SCS included 45 items culled from several different scales that measure the psychological and cultural dimensions of individualism and collectivism (e.g., Bhawuk & Brislin, 1992; Hui, 1988; Yamaguchi, 1994). The items are measured on a 7-point Likert scale anchored from *strongly disagree* (1) to *strongly agree* (7).

Following the development of the initial 45-item SCS, Singelis (1994) conducted a principal components factor analysis to determine which of the 45 items were the most useful in measuring the two dimensions of self. Items not loading highly (i.e., > .35) on

either factor or loading fairly evenly on the two factors were dropped. As such, Singelis selected 24 items categorized into two equal factors for the final version of the SCS: Independent Self-Construals (12 items) and Interdependent Self-Construals (12 items). Similar to the initial 45-item SCS, the final 24-item version is measured on a 7-point Likert scale anchored from *strongly disagree* (1) to *strongly agree* (7).

To date, the SCS is the most frequently adopted measure used to operationalize the construct of self (Grace & Cramer, 2003). Since the development of the SCS (Singelis, 1994), confidence in its measurement ability has continually increased as researchers have tested its psychometric properties, noting the SCS's demonstration of strong reliability and validity (e.g., Grace & Cramer, 2003; Ryder, Alden, & Paulhus, 2000; Singelis, 1994; Singelis & Sharkey, 1995).

Even in the early development of the SCS, Singelis (1994) found adequate internal consistency values for the two self-construal subscales: Independent, $\alpha = .70$; and Interdependent, $\alpha = .74$. Moreover, there are a number of indications that the SCS is a valid measure of self-construals (Singelis, 1994). Primarily, the SCS demonstrates content validity in covering a variety of thoughts, feelings, and behaviours that define construals of the self (e.g., directness, internal attributes, roles, and relationships with groups). Furthermore, in an overview of research pertaining to the predictive validity of the SCS, Singelis proposed that an individual's interdependent subscale score would be positively associated with the degree of attributions made to contextual influences. Accordingly, Singelis empirically examined the interdependence-situational attribution relationship at the individual level. This study demonstrated predictive validity, and the results supported the notion that those with higher interdependence scores tended to

attribute more influence to the situation than those with lower interdependence scores, as measured by the SCS.

Self-Construal Research

The topic of self is central to an individual's perceptions, evaluations, and behaviours and therefore has been a subject of interest in the areas of anthropology, psychology, and social psychology for the past few decades (e.g., Gudykunst et al., 1996; Markus & Kitayama, 1991; Singelis, 1994; Vohs & Heatherton, 2001). Despite the abundance of empirical research examining self-construals, the practical implications of the majority of these studies relate back to a tainted conclusion that an individual's culture or ethnic background dictates their construal of self (Matsumoto, 1999).

According to Matsumoto (1999), Markus and Kitayama (1991) were the first to falsify and accept this self-construal-culture relationship. Specifically, in their study Markus and Kitayama neglected to measure the participants' psychological culture and self-construals. As a result, Markus and Kitayama's conclusions regarding the direct relationship from culture to self-construal are merely assumptions (Matsumoto, 1999). Unfortunately however, this has not been a problem for solely Markus and Kitayama; a blind acceptance of this drastic assumption happens to be true for much of the field (Matsumoto, 1999). Although culture has been the heart of interest amongst researchers, self-construals have been lightly explored in other disciplines: gender (e.g., Cross & Madson, 1997), embarrassability (e.g., Vohs & Heatherton, 2001), personality (e.g., Singelis & Sharkey, 1995), and sport (e.g., Dimmock & Grove, 2006).

One of the most limited areas of self-construal research rests within the sport domain. Dimmock and Grove (2006) are among the only researchers to examine aspects

of self-construals of sport team members. Specifically, they measured the extent to which sport team preferences are associated with the way in which individuals define themselves on the basis of relationships with others. The participants of this study consisted of 173 high school student-athletes from a large Australian city. Using a version of the SCS (Relational-Interdependent Self-Construal Scale; Cross, Bacon, & Morris, 2000) as well as a team identification measurement tool (Team Identification Scale; Dimmock, Grove, & Eklund, 2005), the results indicated a weak correlation between these variables. Dimmock and Grove acknowledged that this weak correlation may have been attributed to the way in which the constructs were measured. For instance, it is likely that participants developed their team preferences at different stages, but unfortunately, the questions from the Relational Self-Construal Scale were phrased in the present tense. To conclude, Dimmock and Grove noted that future research should examine the relationship between sport team preference and relational self-construal.

The only other study to associate self-construal with sport was an intervention conducted by Kernan and Greenfield (2005). Specifically, these authors indirectly examined the self-construals of 15 female varsity athletes, of ethnically diverse backgrounds, from two separate basketball teams. More precisely, athletes' perspectives of collectivism and individualism, which can be considered consequences of interdependent and independent self-construals, were examined. In this three phase study, participants were asked to complete a questionnaire containing dilemmas. An example of a dilemma was "Both Andrea and Emily work hard during practice. Andrea says she practices hard so that she can improve her performance and do well in games. Emily says she practices hard to encourage team unity in order to improve the team's overall ability.

Whose philosophy do you agree with more, Andrea's or Emily's?" The participants were then asked to use journals to document their experiences over the duration of the basketball season. Finally, participants attended three, three-hour workshops, where they were taught about the value system of individualism and collectivism, and how differences in these value systems might give rise to conflict in a team setting. After a season of playing together on the same basketball team, the results indicated that a more collectivist perspective was developed on the part of all team members.

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APPENDICES

Appendix A

Tell me a little bit about yourself as an athlete:

Age: _____

Gender: _____

Current Sport (e.g., basketball, golf): _____

Number of years with current team (playing): _____

I am a starter: Yes No

<p>I am a Formal Leader :</p> <p>(An athlete that is selected by the team or coach to be in a leadership position. Such as a captain, co-captain, or assistant captain)</p> <p>Yes No</p> <p>If yes, circle one:</p> <p>a) Captain</p> <p>b) Co-captain</p> <p>c) Assistant Captain</p>	<p><u>OR</u></p>	<p>I am an Informal Leader :</p> <p>(Established through interactions with team members, not formally appointed by coach or team)</p> <p>Yes No</p>
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Appendix B

Group Environment Questionnaire (GEQ; Carron, Brawley, & Widmeyer, 1985)

This questionnaire is designed to assess your perceptions of your team. There are no wrong or right answers, so please give your immediate reaction. Some of the questions may seem repetitive, but please answer ALL questions. Your personal responses will be kept in strictest confidence.

The following statements are designed to assess your feelings about YOUR PERSONAL INVOLVEMENT with this team. Please CIRCLE a number from 1 to 9 to indicate your level of agreement with each of these statements.

1. I do not enjoy being a part of the social activities of this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

2. I'm not happy with the amount of playing time I get.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

3. I am not going to miss the members of this team when the season ends.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

4. I'm unhappy with my team's level of desire to win.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

5. Some of my best friends are on this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

6. This team does not give me enough opportunities to improve my personal performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

7. I enjoy other parties rather than team parties.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

8. I do not like the style of play on this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

9. For me, this team is one of the most important social groups to which I belong.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

The following statements are designed to assess your perceptions of YOUR TEAM AS A WHOLE. Please CIRCLE a number from 1 to 9 to indicate your level of agreement with each of these statements.

10. Our team is united in trying to reach its goals for performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

11. Members of our team would rather go out on their own than get together as a team.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

12. We all take responsibility for any loss or poor performance by our team.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

13. Our team members rarely party together.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

14. Our team members have conflicting aspirations for the team's performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

15. Our team would like to spend time together in the off season.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

16. If members of our team have problems in practice, everyone wants to help them so we can get back together again.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

17. Members of our team do not stick together outside of practice and games.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

18. Our team members do not communicate freely about each athlete's responsibilities during competition or practice.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

Appendix C

The Sport Leadership Behaviour Inventory (SLBI; Glenn & Horn, 1993)

Rate YOURSELF on how well these personal characteristics describe YOU as a varsity athlete. Your personal responses will be kept in the strictest confidence. Please CIRCLE a number from 1 to 7 to rate yourself on the following characteristics.

1. Determined	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me
2. Responsible	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me
3. Positive	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me
4. Honest	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me
5. Skilled	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me
6. Respected	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me
7. Motivated	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me
8. Organized	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me
9. Consistent	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me
10. Leader	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me
11. Confident	1 Never Like Me	2	3 Sometimes Like Me	4	5 Often Like Me	6	7 Always Like Me

Appendix D

The Self-Construal Scale (SCS; Singelis, 1994)

Rate YOURSELF on how well the following statements describe YOUR feelings as a varsity athlete. Please CIRCLE a number from 1 to 7 to indicate your level of agreement with each of the following statements. There are no wrong or right answers, so please give your immediate reaction. Your personal responses will be kept in the strictest confidence.

Interdependent Items

1. I have respect for the authority figures/ coaches with whom I interact.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

2. It is important for me to maintain harmony within my team.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

3. My happiness depends on the happiness of my team members.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

4. I would offer my seat in a bus to my coach.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

5. I respect athletes who are modest about themselves.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

6. I will sacrifice my self-interest for the benefit of the team.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

7. I often have the feeling that my relationships with my teammates are more important than my own accomplishments.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

8. I should take into consideration my coach's advice when making sport-related decisions.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

9. It is important to me to respect decisions made by the team.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

10. I would stay on my team if they needed me, even if I wasn't happy with the team.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

11. If my teammates fail, I feel responsible.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

12. Even when I strongly disagree with team members, I avoid an argument.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

Independent Items

13. I'd rather say "No" directly, than risk being misunderstood.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

14. Speaking up during a team meeting is not a problem for me.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

15. Having a lively imagination is important to me.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

16. I am comfortable with being singled out for praise or awards.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

17. I am the same person I am at home that I am on the court/ field/ track.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

18. Being able to take care of myself is a primary concern for me.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

19. I act the same way no matter who I am with.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

20. I feel comfortable using a coach's first name soon after I meet them, even when they are much older than I am.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

21. I prefer to be direct and forthright when dealing with new team members.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

22. I enjoy being unique and different from my teammates in many respects.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

23. My personal identity, independent of my team, is very important to me.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

24. I value being in good health above everything.

1	2	3	4	5	6	7
Strongly Disagree		Somewhat Disagree		Somewhat Agree		Strongly Agree

Appendix E

CIS Contact Letter

Dear CIS,

My name is Michelle Peters and I am currently in the process of completing my Master's degree in Sport and Exercise Psychology at the University of Windsor, Ontario. Under the supervision of Dr. Todd Loughhead, I am conducting an online study examining the relationship between self-rated athlete leadership characteristics, self-construals, and team cohesion.

With your permission, I would like to survey the athletes within your association for this research project. A similar version of this letter can be found at the bottom of this email pertaining to the athletes specifically. By forwarding this e-mail to the CIS athletes, you will be of great help to the production of this study. In addition, please note that this study has received clearance from the University of Windsor Research Ethics Board.

There are no anticipated risks or discomforts associated with the participation of this study. Results from this study will shed light on which type of athletes, in terms of their leadership characteristics and self-construal, create the most cohesive teams.

Participation will take no longer than 10 minutes. Information provided by the athletes will not be shared.

Participants can assess the online survey at a secure website, by copying and pasting the following web address into their browser:

<http://fluidsurveys.com/surveys/exerciseimagery/team-cohesion/>

Your assistance and cooperation with this research is greatly appreciated. Please feel free to contact me via e-mail (peters15@uwindsor.ca) or telephone (1-519-253-3000 ext. 4058) with any questions or comments you have.

Thank you,

Michelle Peters
B.H.K. Honors in Human Kinetics
M.H.K. Candidate
Department of Kinesiology
University of Windsor
401 Sunset Ave.
Windsor, ON. N9B-3

Appendix F

Recruitment Letter for Athletes

My name is Michelle Peters and I am currently in the process of completing my Master's degree in Sport and Exercise Psychology at the University of Windsor, Ontario. Under the supervision of Dr. Todd Loughhead, I am conducting an online study examining the relationship between self-rated athlete leadership characteristics, self-construals, and team cohesion.

With the permission of the University of Windsor Research Ethics Board, and the CIS, I am requesting your participation in this research.

There are no anticipated risks or discomforts associated with the participation of this study. Results from this study will shed light on which type of athletes, in terms of their leadership characteristics and self-construal, create the most cohesive teams.

Participation will take no longer than 10 minutes. Information provided by the athletes will not be shared.

Participants can assess the online survey at a secure website, by copying and pasting the following web address into their browser:

<http://fluidsurveys.com/surveys/exerciseimagery/team-cohesion/>

Your assistance and cooperation with this research is greatly appreciated. Please feel free to contact me via e-mail (peters15@uwindsor.ca) or telephone (1-519-253-3000 ext. 4058) with any questions or comments you have.

Thank you,

Michelle Peters
B.H.K. Honors in Human Kinetics
M.H.K. Candidate
Department of Kinesiology
University of Windsor
401 Sunset Ave.
Windsor, ON. N9B-3P4

Appendix G

LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

The Relationship Between Self-Rated Athlete Leadership Characteristics, Self-Construal, and Team Cohesion

You are asked to participate in a research study conducted by Michelle Peters (B.H.K., M.H.K. Candidate) and Dr. Todd Loughead (PhD), from the Department of Kinesiology at the University of Windsor. The results of this study will contribute the completion of a Masters' thesis in Sport and Exercise Psychology.

Please feel free to contact me via e-mail (peters15@uwindsor.ca) or telephone (1-519-253-3000 ext. 4058) with any questions or comments you have regarding this study.

Purpose of the Study

To examine the relationship between self-rated athlete leadership characteristics, self-construals, and team cohesion.

Procedures

If you volunteer to participate in this study, you will be asked to complete an online questionnaire that may take up to 10 minutes to complete.

Potential Risks and Discomforts

There are no physical, psychological, or emotional risks or discomforts associated with participation in this study.

Potential Benefits to Subjects and/or to Society

The information gained from this study will advance the research in the field of sport psychology. Specifically, the results will help coaches understand which athletes, based on their leadership characteristics and self-construal, can be combined to create the most cohesive teams.

Compensation for Participation

You will not be compensated for your participation in this study.

Confidentiality

Responses to questionnaires will remain anonymous. Data will be kept in a password protected file and will only be accessible by the primary researchers. Data will be kept secured for five years. After five years, the data will be destroyed.

Participation and Withdrawal

Participation in this study is completely voluntary. If you volunteer to participate in this study, you may withdraw at any time you are completing the surveys, without any penalties or consequences. However, once you have submitted a completed survey, this will be accepted as your consent to participate and it is not possible to withdraw because the surveys are anonymous. You may refuse to answer any questions and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

Feedback of Results to the Subjects

The results will be posted at the University of Windsor's Research Ethics Board website by September 1, 2013 (<http://www.uwindsor.ca/reb>). If you have any additional concerns or questions, you can call the primary investigators at the numbers listed above.

Subsequent Use of Data

This data may be used in subsequent studies conducted by the researchers.

Rights of Research Participants

You have the right to withdraw your consent at any time and discontinue participation without penalty. If you have any further questions regarding your rights as a research participant, please contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 1-519-253-3000, ext. 3948; email:ethics@uwindsor.ca

Signature of Investigator

These are the terms under which I will conduct research.

Signature of Investigator

Date

VITA AUCTORIS

NAME: Michelle M. Peters

PLACE OF BIRTH: Windsor, ON

YEAR OF BIRTH: 1989

EDUCATION: St. Anne's Catholic Secondary School, Tecumseh, ON, 2007
University of Windsor, B.HK., Windsor, ON, 2011
University of Windsor, M.HK., Windsor, ON, 2013