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THE IMPLEMENTATION AND EVALUATION OF AN ATHLETE LEADERSHIP
DEVELOPMENT PROGRAM WITH MALE OLDER YOUTH HOCKEY PLAYERS

by

Matthieu M. Boisvert

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

2018

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DEVELOPMENT PROGRAM WITH MALE OLDER YOUTH HOCKEY PLAYERS

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May 11, 2018

DECLARATION OF ORIGINALITY

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ABSTRACT

The purpose of the current study was to implement and evaluate a leadership development program that targets the enhancement of athlete leadership behaviours, cohesion, and collective efficacy. The sample comprised of 14 male major midget hockey players ($M = 16.46$, $SD = 0.78$) from one team competing in the Bluewater Hockey League during the 2017-2018 season. Players participated in six leadership development workshops over the course of the season. The results indicated no significant mean changes at post-intervention for athlete leadership behaviours, cohesion, and collective efficacy. A focus group interview conducted with the team's leadership core (i.e., captain and 3 assistant captain) following the intervention revealed that the players believed the leadership development program helped buffer against the negative effects of their on-ice performances.

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RESEARCH ARTICLE

Introduction

The importance of leadership in sport is well documented (e.g., Bucci, Bloom, Loughead, & Caron, 2012). In fact, effective leadership is identified as a crucial factor in achieving team success (Zaccaro, Rittman, & Marks, 2002). To date, most of the research examining leadership in sport has primarily focused on the coach, which is not surprising given the coach is responsible for making decisions with respect to team matters such as strategy, tactics, and team personnel (Loughead, Hardy, & Eys, 2006). However, the importance of athlete leadership in sport teams has received some attention (Loughead et al., 2006). In fact, Gould, Hodge, Peterson, and Petlichoff (1987) stated that coaches consider athlete leadership an important component for effective team performance.

Athlete leadership is defined as “an athlete occupying a formal or informal role within a team who influences team members to achieve a common goal” (Loughead et al., 2006, p. 144). The above definition highlights two types of leadership roles. First, formal athlete leaders are those who are assigned to their leadership role by the coach or through team selection (e.g., captain, assistant captain). Second, informal athlete leaders emerge based on their interactions with other teammates (e.g., veteran players). Crozier, Loughead, and Munroe-Chandler (2013) examined what athletes considered to be the ideal number of athlete leaders on a team as well as the benefits of having athlete leaders. Athletes indicated that 85% of a team’s roster should be comprised of athlete leaders. Specifically, formal leaders should occupy 19% of a roster while informal leaders should occupy 66%. Furthermore, athletes reported that having an ideal number of athlete leaders created opportunities to share responsibilities and increased the amount of leadership and resources available to them. Moreover, an ideal number of athlete leaders was

believed to positively influence a number of group dynamic constructs, including team structure (e.g., enhanced role clarity), team processes (e.g., increased communication between team members), and team cohesion (Crozier et al., 2013).

While Crozier et al. (2013) indicated that the presence of athlete leaders could potentially have a positive impact on many group dynamic variables, the present study will concentrate on two of these variables: cohesion and collective efficacy. The construct of cohesion is considered one of the most important small group variables (Lott & Lott, 1965) and 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). One aspect of this definition is that it highlights how cohesion contains both a task and social orientation towards the group. Specifically, a task cohesion orientation refers to the general tendency of the group to stick together to achieve its objectives, while a social cohesion orientation represents feelings of closeness, similarity, and bonding of the group as a social unit.

Several studies have examined the athlete leadership-cohesion relationship. For example, Dupuis, Bloom, and Loughead (2006) qualitatively examined the leadership behaviours of six retired hockey captains. The results indicated that these former captains used leadership behaviours to enhance the cohesiveness on their teams. In particular, the leadership behaviours of training and instruction (i.e., improving athlete performance) and social support (i.e., satisfying interpersonal needs of group members) enhanced both task and social cohesion. From a quantitative perspective, athlete leadership behaviours have been examined using primarily two questionnaires (Loughead, 2017). The first questionnaire researchers have used is the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980). For instance, Vincer and Loughead (2010)

surveyed varsity athletes to examine the relationship between athlete leadership behaviours and perceptions of cohesion. Athlete leaders who were perceived as showing higher frequencies of training and instruction and social support had teammates with stronger perceptions of both task and social cohesion. Furthermore, the leadership behaviour of democratic behaviour (i.e., including group members in the decision process) was positively related to task cohesion, while autocratic behaviour (i.e., acting independently in decision making) was negatively associated with task and social cohesion. Similarly, Burkett, Blom, Razon, and Johnson (2014) examined the impact of formal and informal athlete leadership behaviours on team cohesion with basketball athletes from NCAA Division III. For formal athlete leaders, positive correlations were found between the leadership behaviour of training and instruction and task cohesion. Further, the leadership behaviours of social support and positive feedback were positively associated with both task and social cohesion. However, a significant negative relationship was found between the leadership behaviour of autocratic behaviour and both task and social cohesion. As for informal athlete leaders, a significant positive relationship was found between training and instruction and task cohesion. In addition, democratic behaviours, social support, and positive feedback were positively related to both task and social cohesion (Burkett et al., 2014).

The second questionnaire used to measure athlete leadership when examining cohesion are those related to transformational leadership. For example, Callow, Smith, Hardy, Arthur, and Hardy (2009) examined the relationship between transformational leadership behaviours and team cohesion of ultimate Frisbee team captains. The transformational leadership behaviours of individual consideration (i.e., leaders attending to individual follower's needs and concerns), fostering acceptance of group goals (i.e., leader behaviours that promote teamwork to achieve

team goals), and high-performance expectations (i.e., leaders showing that he/she expects high standards from the team) were positively related to task cohesion. Additionally, fostering acceptance of group goals was positively associated with social cohesion.

In addition to cohesion, the other group dynamics variable targeted in this proposed study is collective efficacy. Bandura (1997) defined collective efficacy as a “group’s shared belief in its conjoint capability to organize and execute the courses of action required to produce given levels of attainment” (p. 477). According to Bandura, a team’s collective efficacy contributes to optimal team functioning, motivation, and perseverance, and influences individual team members’ behaviours, effort, and persistence in the face of adversity. Similar to cohesion, collective efficacy has been shown to be related to athlete leadership. For instance, Price and Weiss (2011) found that being viewed as an effective athlete leader was associated with teammates having greater perceptions of collective efficacy. Furthermore, athletes who rated themselves higher in athlete leadership behaviours reported greater collective efficacy. Similarly, Price and Weiss (2013) found that coach’s transformational leadership behaviours were positively related to collective efficacy.

With athlete leadership behaviours related to both cohesion and collective efficacy, it would be helpful to have a conceptual model that highlights these relationships. Chelladurai (2007) developed the Multidimensional Model of Leadership (MML), a linear model composed of three components: a) antecedents, b) leader behaviours, and c) consequences (see Figure 1). Antecedents consist of situational (i.e., team norms and goals), leader (i.e., leaders’ personal characteristics), and member characteristics (i.e., members’ personality, experience, and ability). Leader behaviours, consist of three behaviour types: a) required, b) preferred, and c) actual. Required behaviours refer to the kind of behaviours the leader is expected to display. Preferred

behaviours refer to the preferences of team members for certain leadership behaviours. The preferences for certain behaviours from the leader are determined by the team's situation and the nature of the group. Actual behaviours refer to how the athlete leader behaves, and are largely dependent on the leader's personal characteristics, such as personality, expertise, and experience. Finally, the consequences in the model refer to outcomes, such as performance and satisfaction. In relation to the present study, the model highlights that leadership behaviours can impact team level outcomes (e.g., cohesion and collective efficacy). Consequently, it becomes important to develop these leadership behaviours in order to positively influence these outcomes. As such, leadership development involves enhancing the leadership capability by putting an emphasis on individual knowledge, skills, and abilities and by expanding the collective capacity of team members to engage effectively in leadership roles and processes (Day, 2001).

Research focusing on athlete leadership development programs is limited. Among the few articles, Gould and Voelker (2010) described a captain's leadership training program developed to teach high school captains how to be effective leaders. The program was delivered as a one-day workshop and involved three breakout sessions: what you need to know as a leader, handling common team problems, and getting your questions answered. Overall, athletes reported finding the workshop helpful and enjoyable. Seeking to expand Gould and Voelker's one-day workshop, Blanton, Sturges, and Gould (2014) described a two-year long high school youth leadership club intended to develop leadership capabilities. Specifically, the program was designed to help student-athletes develop their leadership skills, enabling these high school athletes to deliver a leadership program to middle school students. Similarly, Voight (2012) conducted a season-long athlete leadership development program with two NCAA Division I volleyball teams. The program consisted of 15 stages (e.g., leadership assessment, leadership

roles and responsibilities, captain platform) and was developed to help improve team communication and functioning, assist the team on a daily basis, and foster the personal leadership development of team leaders. The results of individual interviews with the team captains conducted at the end of the season revealed a positive response to the leadership development program. The captains reported that the program had a positive impact on their personal leadership skills, team cohesion, and team and teammate performance.

Finally, Duguay, Loughhead, and Munroe-Chandler (2016) developed and administered a season-long athlete leadership development program. A total of 27 female varsity athletes participated in four 1 hour-long leadership workshops throughout their season. The program positively impacted most of the athlete leadership behaviours targeted, specifically training and instruction, democratic behaviours, social support, positive feedback, appropriate role model, inspirational motivation, high performance expectations, and fostering acceptance of group goals and promoting team work. That is, participants reported employing these behaviours more after the leadership development program. Furthermore, the athlete leadership development program positively influenced athlete satisfaction and peer motivational climate (Duguay et al., 2016).

Although these studies highlight the benefits of conducting athlete leadership development programs, limitations remain. Primarily, the Gould and Voelker (2010) program does not appear to be theoretically grounded, while Voight (2012) simply stated that the program was grounded in leadership research and organizational psychology without any additional insight or information into which theories were used to develop the leadership development program. Additionally, there were no quantitative measures used to objectively assess their results. Furthermore, much of the research on athlete leadership development has focused on varsity level athletes (e.g., Duguay et al., 2016, Voight, 2012). This study attempted to fill these

gaps in the literature by conducting an athlete leadership development program grounded in theory (i.e., Chelladurai, 2007) with youth athletes.

The purpose of the current study was to implement and evaluate a leadership development program that targets the enhancement of athlete leadership behaviours, cohesion, and collective efficacy. Based on the success of Gould and Voelker (2010), Voight (2012), Blanton et al. (2014), and Duguay et al.'s (2016) leadership development programs, it was hypothesized that the athlete leadership development program would positively impact athlete leadership behaviours, cohesion, and collective efficacy.

Method

Participants

Participants in the current study were 17 male major midget hockey players from one team competing in the Bluewater Hockey League during the 2017-2018 season. Throughout the season, three players left the team, leaving 14 players who completed the measures both pre- and post-intervention. Major midget is the second highest level of minor hockey in Ontario. Athletes in the present study ranged in age from 15 to 17 years ($M = 16.46$, $SD = 0.78$) and had been playing hockey for an average of 10.79 years ($SD = 2.04$). The regular season for this team started in October and concluded in March. The team ended their season with a record of 3-26-5 (i.e., win-loss-tie), collecting 11 points out of a possible total of 68 points giving them a 16.18% winning percentage.

Measures

Demographics. Athletes completed demographic information including name, age, experience playing hockey, position played, if they have ever received leadership training in the past, and their leadership role on their current team (see Appendix A).

Athlete leadership behaviours. Athlete leadership behaviours were assessed using two questionnaires. The first questionnaire was a modified version of the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980, see Appendix B) consisting of 40 items and assessing the same five dimensions as the original version: training and instruction, positive feedback, social support, democratic behaviour, and autocratic behaviour. All responses on the LSS are scored on a 5-point Likert scale ranging from (1) *never* to (5) *always* with higher scores reflecting higher occurrences of the leadership behaviours. The modified version has been used in previous athlete leadership research (Loughead & Hardy, 2005). These authors reported acceptable internal consistency values for the five dimensions and evidence of concurrent validity with a wide range of independent and interdependent team sport athletes. The only modification, as noted by Loughead and Hardy (2005), concerned the stem that preceded the items. In the original version, the stem reads “My coach” whereas in the athlete leader version the stem reads “The athlete leader(s) on my team.” The first dimension, training and instruction, contains 13 items and examines leader behaviours aimed at improving the athletes’ performance through physical and skill development. A sample item from this dimension is “Sees to it that every team member is working to his/her capacity.” The second dimension, democratic behaviour, contains 9 items and examines the extent to which the leader involves their teammates in the decision-making. A sample item from this dimension is “Lets team members decide on the plays to be used in a game.” The third dimension, autocratic behaviour, contains 5 items and examines behaviour that involves the athlete leader’s independence in decision-making. A sample item from this dimension is “Refuses to compromise a point.” The fourth dimension, social support, contains 8 items and examines the leader’s concern for his/her teammates’ welfare. A sample item from this dimension is “Helps team members with their personal problems.” The fifth dimension, positive

feedback, contains 5 items and examines the leader's tendency to reinforce a team member's behaviour. A sample item from this dimension is "Compliments a team member for his/her performance in front of others." Vincer and Loughhead (2010) found the LSS had a reasonably good model fit: CFI = .99, TLI = .98, and RMSEA = .05. Further, the Cronbach's alpha coefficients were as follows: training and instruction ($\alpha = .88$), democratic behaviour ($\alpha = .79$), autocratic behaviour ($\alpha = .74$), social support ($\alpha = .86$), and positive feedback ($\alpha = .84$) (Vincer & Loughhead, 2010).

The second questionnaire used to measure athlete leadership behaviours was the Differentiated Transformational Leadership Inventory (DTLI; Callow et al., 2009, see Appendix C). The DTLI contains 31 items and measures six transformational and one transactional behaviours: inspirational motivation (4 items), appropriate role modeling (5 items), individual consideration (4 items), intellectual stimulation (4 items), high performance expectations (5 items), fostering acceptance of group goals (3 items), and contingent reward (6 items). Each item from the inventory is scored on a 5-point Likert scale ranging from (1) *not at all* to (5) *all the time*. The first behaviour, inspirational motivation, examines athlete leader behaviours that motivates and inspires teammates. A sample item is "My athlete leader(s) talks enthusiastically about what needs to be accomplished." The second behaviour, appropriate role-modeling, examines athlete leadership behaviour of setting the example for followers to emulate. A sample item is "My athlete leader(s) leads from the front whenever he/she can." The third behaviour, individual consideration examines athlete leader behaviour that demonstrates attending to individual team member's personal needs and feelings. A sample item is "My athlete leader(s) recognizes that different players have different needs." The fourth behaviour, intellectual stimulation, examines athlete leader behaviour that encourages team members to be innovative

and creative. A sample item is “My athlete leader(s) challenges me to think about problems in new ways.” The fifth behaviour, high performance expectations, examines athlete leader behaviour that express expectations of high standards. A sample item is “My athlete leader(s) expects us to achieve high standards.” The sixth behaviour, fostering acceptance of group goals, examines athlete leader behaviour that promotes a focus on common goals. A sample item is “My athlete leader(s) develops a strong attitude and spirit among team members.” Within the transactional behaviour dimension, contingent reward examines athlete leader behaviour that is characterized by an exchange process between the leader and team member. Callow et al. reported support for the psychometric properties of the DTLI, and Arthur, Woodman, Ong, Hardy, and Ntoumanis (2011) found support for the factorial and discriminant validity of this 6-factor model. Callow et al. (2009) reported the following Cronbach’s alpha coefficients: individual consideration ($\alpha = .66$), fostering acceptance of group goals ($\alpha = .73$), high performance expectations ($\alpha = .86$), appropriate role model ($\alpha = .81$), inspirational motivation ($\alpha = .75$), and intellectual stimulation ($\alpha = .82$).

Cohesion. Cohesion was assessed using the Youth Sport Environment Questionnaire (YSEQ; Eys, Loughhead, Bray, & Carron, 2009; see Appendix D). The YSEQ was developed to measure cohesion in adolescent athletes aged 13-17 years. The YSEQ is an 16-item questionnaire measuring task and social cohesion in addition to two negatively worded spurious items. All items are scored on a 9-point Likert scale ranging from (1) *strongly disagree* to (9) *strongly agree*, with higher scores reflecting greater perceptions of cohesion. Task cohesion ($\alpha = .89$) contains eight items (e.g., “We like the way we work as a team”) and social cohesion ($\alpha = .94$) contains eight items (e.g., “Some of my best friends are on this team”). Confirmatory factor

analyses provided support for the factorial validity of the YSEQ with an acceptable model fit: CFI = .90 and SRMR = .068 (Eys et al., 2009).

Collective efficacy. Players' perceptions of their team's collective efficacy were assessed using the Collective Efficacy Questionnaire for Sports (CEQS; Short, Sullivan, & Feltz, 2005; see Appendix E). The CEQS is a 20-item questionnaire that measures the five dimensions of collective efficacy: ability (four items; e.g., "Your team's ability to outplay the opposing team"), effort (four items; "Your team's ability to demonstrate a strong work ethic"), persistence (four items; "Your team's ability to perform under pressure"), preparation (four items; "Your team's ability to be ready"), and unity (four items; "Your team's ability to resolve conflicts"). All items are scored on an 11-point Likert scale, ranging from (0) *not at all confident* to (10) *extremely confident*, with higher values representing a greater rating of the team's confidence in their ability to successfully achieve a goal. A CFA revealed a good model fit: CFI= .92, NNFI= .90, SRMR= .06, and RMSEA= .10 (Short et al., 2005). Cronbach's alphas were as follows: ability (α = .91), effort (α = .87), persistence (α = .81), preparation (α = .87), and unity (α = .85) (Short et al., 2005).

Procedure

Prior to data collection, ethics approval was obtained from the University of Windsor's Research Ethics Board. Data collection occurred at two-time points during the study. The first data collection, baseline, occurred prior to the leadership development intervention. For baseline, athletes were asked to read a letter of information for consent to participate in research (see Appendix F), and sign a consent to participate in research form (see Appendix G). Once consent was obtained, pre-intervention questionnaires were administered measuring demographics, athlete leadership behaviours (i.e., LSS, DTLI), cohesion (i.e., YSEQ), and collective efficacy

(i.e., CEQS). Following baseline testing, athletes participated in six leadership development workshops over the course of the season. Each workshop lasted approximately 45-60 minutes. Following the final workshops, participants completed all of the questionnaires post-intervention. An outline of the leadership behaviours covered in each workshop is provided in Table 1. Following post-intervention data collection, a focus-group interview was conducted to evaluate the effectiveness of the athlete leadership development program.

Athlete Leadership Intervention

The intervention included six workshops. Similar to Duguay et al. (2016), each workshop was designed using the recommendations of Whetten and Cameron (1995) for leadership development. For each workshop, participants were given 1) a presentation of the leadership behaviours to be learned, 2) a demonstration of the leadership behaviours in action, and 3) the opportunity to practice these leadership behaviours.

Each workshop featured a set of athlete leadership behaviours that were targeted for development. During the workshop, participant worked either individually or in small groups to complete activities designed to reinforce and practice the leadership behaviours covered within each workshop. All activities finished with a group discussion highlighting how these leadership behaviours benefit the participants themselves and the team as a whole (i.e., cohesion and collective efficacy). To encourage maximum participation from the participants, workshops were delivered prior to the team's practices. Consequently, nearly every participant was present for each workshop. The few absences were due to work conflict or illness.

In addition to the workshops, participants were given a leadership workbook to support, reinforce, and expand on the material presented in the workshops (Duguay et al., 2016). The

workbook included an introduction to the program, important definitions, activities to accompany the targeted leadership behaviours, and a reflection section.

Results

Descriptive Statistics

Means and standard deviations for the leadership behaviours are presented in Table 2, while cohesion and collective efficacy are presented in Table 3. For the athlete leadership behaviours, the means for social support, positive feedback, inspirational motivation, intellectual stimulation, acceptance of group goals, high performance expectations, appropriate role model, and contingent reward appeared to trend downward from pre- to post-intervention, while democratic behaviour, autocratic behaviour, and individual consideration appeared to trend upward. Training and instruction remained the same from pre- to post-intervention.

As for cohesion and collective efficacy, both the means of task and social cohesion appeared to trend upward from pre- to post-intervention, while the means for the five dimensions of collective efficacy trended downward.

Quantitative Analysis

The data were screened for missing values, outliers, skewness, and kurtosis. The data were deemed to be normally distributed, therefore no transformations to the data were necessary. To determine whether there were differences in leadership behaviours, cohesion, and collective efficacy pre- and post-intervention, a series of paired-samples *t* test were carried out to determine the effect of the intervention. Specifically, separate Frequentist and Bayesian paired-samples *t* tests were carried out for athlete leadership behaviours, cohesion, and collective efficacy. These two types of paired-samples *t* tests were calculated to assess if Bayesian analyses would yield different results than the Frequentist analyses.

Bayesian analyses have been shown to be more trustworthy than Frequentist analyses when dealing with small sample sizes (Wanless, Rimm-Kaufman, Abry, Larsen, & Patton, 2015). Whereas Frequentist analyses consider parameters to be fixed and data to be random, Bayesian analyses consider parameters to be random (i.e., have distributions) and the data fixed (McNeish, 2016). As a result, each framework views statistical inferences from different perspectives. On one hand, Frequentist analyses attempt to find the likelihood of obtaining the values in the data given the set of parameter values. On the other hand, Bayesian analyses approach statistical modeling from the viewpoint that, given the data available, what are the values for the parameters. In Bayesian analyses, the posterior distribution (equivalent to Frequentist point estimates and standard error) is a combination of prior distributions (determined by the researcher) and the likelihood (determined by the data). An advantage of the Bayesian analyses is the inclusion of prior information into the model through prior distributions, which can help the accuracy of predictions (McNeish, 2016). The inclusion of prior distributions in the analysis allows research with small sample sizes to base the results on more information than is available in the data. The contribution of the prior distribution and likelihood to the posterior distribution is not equal. When dealing with a small sample size, the prior distribution is given more weight than the likelihood (McNeish, 2016).

The reported findings of the paired-samples t test include both Frequentist and Bayesian approaches. Bayesian analyses were conducted in JASP (JASP Team, 2018). A Bayes factor of 10 (i.e., BF_{10}) compares the alternative hypothesis (H_1) to the null hypothesis (H_0). Bayes factors between 1 and 3 were interpreted as anecdotal (i.e., weak) evidence for H_1 , while Bayes factors between .1 and .33 were interpreted as moderate evidence for H_0 (Jeffreys, 1961). The results of the Bayesian paired-samples t test are accompanied by a figure illustrating the Sequential

Analysis. The Sequential Analysis displays the Bayes factor as a function of the number of paired observations (n) using the researcher-defined prior, a pie chart depicting the odds of the data under the null vs. alternative hypothesis, and the decisiveness of the evidence according to Jeffreys' (1961) evidence categories. In each Sequential Analysis graph, the x-axis represents the number of data points and the y-axis represents the Bayes factor. Each graph tracks the Bayes factor as it changes after every data point. For the current study, the prior was set at the default of 0.707.

Athlete leadership behaviours. The results of the Frequentist paired samples t -test showed no significant difference from pre- to post-intervention for all of the leadership behaviours which included training and instruction ($t(13) = .000, p = 1.000$), democratic behaviour ($t(13) = -.088, p = .931$), autocratic behaviour ($t(13) = -1.578, p = .139$), social support ($t(13) = 1.158, p = .268$), positive feedback ($t(13) = 1.895, p = .081$), individual consideration ($t(13) = -.112, p = .912$), inspirational motivation ($t(13) = .933, p = .368$), intellectual stimulation ($t(13) = 1.059, p = .309$), acceptance of group goals ($t(13) = 2.075, p = .058$), high performance expectations ($t(13) = .393, p = .700$), appropriate role model ($t(13) = .563, p = .583$), and contingent reward ($t(13) = .991, p = .340$).

The Bayesian paired t -test indicated moderate evidence in favour of the null hypothesis for training and instruction ($BF_{10} = .270$), democratic behaviour ($BF_{10} = .288$), social support ($BF_{10} = .142$), positive feedback ($BF_{10} = .111$), individual consideration ($BF_{10} = .294$), inspirational motivation ($BF_{10} = .156$), intellectual stimulation ($BF_{10} = .148$), acceptance of group goals ($BF_{10} = .106$), high performance expectation ($BF_{10} = .208$), appropriate role model ($BF_{10} = .188$), and contingent reward ($BF_{10} = .152$). Anecdotal evidence in favour of the alternative hypothesis was found for autocratic behaviour ($BF_{10} = 1.356$), indicating that players displayed

more autocratic behaviours at the end of the season than at the beginning. These findings are consistent with the Frequentist t tests results suggesting no significant changes from pre- to post-intervention. See Figure 1 for the athlete leadership behaviour Sequential Analysis graphs.

Cohesion. The results showed no significant change from pre- to post-intervention for task cohesion ($t(13) = -.186, p = .855$) and social cohesion ($t(13) = -.024, p = .340$). Similarly, Bayesian paired t -test showed moderate evidence in favour of the null hypothesis for both task cohesion ($BF_{10} = .311$) and social cohesion ($BF_{10} = .275$). These findings are consistent with the Frequentist t tests results suggesting no significant changes from pre- to post-intervention. See Figure 2 for the cohesion Sequential Analysis graphs.

Collective efficacy. Frequentist paired samples t -test indicated that ability ($t(13) = .540, p = .599$), effort ($t(13) = 1.868, p = .084$), persistence ($t(13) = .712, p = .489$), preparation ($t(13) = .752, p = .466$), and unity ($t(13) = .289, p = .777$) showed no significant mean increases from pre-intervention to post-intervention. Bayesian paired t -test showed moderate evidence in favour of the null hypothesis for ability ($BF_{10} = .191$), effort ($BF_{10} = .112$), persistence ($BF_{10} = .174$), preparation ($BF_{10} = .170$), and unity ($BF_{10} = .221$). These findings are consistent with the Frequentist t tests results suggesting no significant changes from pre-intervention to post-intervention. See Figure 3 for the collective efficacy Sequential Analysis graphs.

Qualitative Analysis

Following the athlete leadership development intervention, a focus group interview was conducted with four players from the team's leadership core (i.e., 1 captain and 3 assistant captains). The players selected to participate in this qualitative piece were chosen with the help of the team's head coach who felt these players would be able to speak about the program in an articulate and comprehensive manner. It's possible, however, that interviewing only athletes

occupying a formal leadership role may lead to some bias in the responses. The purpose of this focus group was to allow participants to reflect on their season and qualitatively evaluate the effectiveness of the athlete leadership development program. Conducting a focus group interview allowed the athletes to give a detailed account of their personal opinions and perceptions concerning the leadership program and its effect on individual players and the team as a whole. The focus group interview lasted approximately 30 minutes. A social constructivist approach was used to understand the players' views and interpretations concerning their experiences throughout the leadership program, as opposed to trying to find a universal truth that is independent of human interpretations and social meanings (Creswell, 2013). This qualitative piece was grounded in ontological relativism (i.e., social reality is constructed and multiple) and epistemological constructionism (i.e., knowledge is subjectively created) (Smith & Caddick, 2012). The data were examined using hierarchical content analysis, allowing for the identification and description of patterns in the data (Sparkes & Smith, 2014). Specifically, meaningful pieces in the transcript were organized into raw data themes. Next, themes that appeared to fit well together were combined into categories. From these categories, two general dimensions were created: team challenges and intervention effectiveness and recommendations. Athletes' names were changed for the quotes below to HP (i.e., hockey player) and a given a number (e.g., HP1).

An interview guide comprising of four sections was developed. The first section consisted of opening questions designed to create discussion around the team's performance throughout the season (e.g., Do you feel your record accurately reflects how the team performed this season?). The second section included the main questions concerning the participants' impressions of the leadership development program (e.g., What were your general impressions

of the leadership program? What do you think were the benefits of the leadership program? Did the program help you deal with conflicts?). The third section consisted of summary questions related to the content of the responses (e.g., Do you feel going through this leadership program made you better leaders?). Finally, the fourth section consisted of concluding questions that allowed participants to provide recommendations on how to improve the athlete leadership development program (e.g., Do you have any final thoughts? Anything you want to add?). The focus group was audio recorded and transcribed verbatim, resulting in 11 pages of single-spaced transcribed text. Based on the interviews two major themes emerged that involved the challenges the team faced during the season and the effectiveness of the intervention. Each theme will be discussed below.

Team challenges. The participants discussed the challenges they faced throughout the season and what contributed to their poor on-ice performance (i.e., 16.18% winning percentage). Every player in the focus group agreed that a lack of effort was the element that contributed the most to their poor on-ice performance. Specifically, the players indicated that they knew it might be a difficult season but expected teammates to put in the effort.

I knew we weren't going to win a lot of games coming into the season, but I expected that everyone would at least try 100% every game. That wasn't really the case. If we got down one, two, or three goals everyone just shut down. Everyone wanted to do something about it [being down in the game] but no one wanted to do the work to change the outcome. (HP1)

Participants noted how the lack of effort impacted their team's performance: "You need a whole team to put in the effort, if you only have 5 or 6 guys going out every game and trying, you're playing every shift 5 on 3 or 5 on 4, basically shorthanded the whole game" (HP1). The

participants also mentioned that they felt their season could have gone differently if players had put in the effort consistently: “We had a lot of one goal losses. We didn’t take the extra step, there could have been better outcomes if we would have taken the extra step but instead we just held back” (HP4). Players mentioned that their regular season record of 3-26-5 (i.e., win-loss-tie) did not accurately reflect how the team performed. In fact, players mentioned that these close losses helped them remain confident in the team’s ability to win throughout the season.

Intervention effectiveness. The players mentioned how the athlete leadership development program helped them deal with their frustrations (e.g., lack of effort, losing games) by teaching them to communicate more effectively with each other. As one participant noted, “We were talking to each other more, people were actually stepping up and saying what they had to say” (HP4). The enhanced communication was particularly useful in dealing with conflicts that occurred throughout the season.

When conflict arose, instead of yelling and getting mad at each other, we just told ourselves let’s settle down, talk it out, and find a good solution that benefits both sides and let’s get back in the game and focus. (HP3)

The players also discussed how the athlete leadership development program helped put the frustration of consistently losing into perspective. As one participant highlighted: “The program definitely gave us the mindset that yes we are losing games, but you have to remember it’s a team sport not an individual sport. While losing is difficult, you have to stick together win or lose” (HP2).

It definitely helped everyone keep their cool. We told ourselves let’s relax, we all want to be on the same page, we all want to win. Let’s figure out a way to do it together, let’s not do things independently, let’s do it as a team, we all want the same thing. (HP3)

Players also talked about how their poor on-ice performance impacted the cohesion between players. As one participant noted: “Once something goes wrong [during a game] everyone looks around to find someone to pass the blame” (HP1). Players expanded on who was the target of the blame: “A lot of the blame was put on the goalie, instead of looking at maybe the problem with effort and dedication we [the team] just blamed the goalie” (HP1). However, the participants mentioned that tensions between players on the ice did not impact relationships off the ice. For instance, “Once we stepped off the ice, we accepted the fact that we lost another game, the frustrations always stayed on the ice” (HP1). Further, the players discussed how the athlete leadership development program influenced the team’s cohesiveness.

It [athlete leadership development program] brought us together more, we all got along before, but we weren’t really united. It brought us all together as more than just friends. If something happened on the ice, everyone took it to heart. For instance, if someone got checked from behind or got high sticked and got hurt, everyone took it to heart. We just cared about each other more. (HP1)

Additionally, the participants mentioned how the athlete leadership development program helped individual players and the team as a whole. In terms of individual benefits, participants discussed how the program influenced their own personal leadership development. This included stepping up and taking action regardless of whether or not you were a formal leader. As one player noted: “I learned that you don’t have to have a “C” or an “A” on your jersey to be a leader. Anyone can step up. As well, you don’t have to necessarily be a verbal leader, you can lead by example” (HP2). Additionally, the participants discussed learning how to motivate their teammates and taking their teammates’ opinion into consideration when making decisions.

[The athlete leadership development program] taught me how to motivate my teammates, get them to be on the same page, be more open minded. It also taught me how to take other people's opinion and work it in with my own ideas and form one single plan that would work for everyone. (HP1)

The participants also noted how their own leadership behaviours impacted their teammates:

“[The athlete leadership development program] taught you how to make everyone around you a leader as well and teach everyone else how to lead the team” (HP3).

In terms of team benefits, participants discussed how the skills they learned during the athlete leadership development program impacted the way the team played. Following the end of the program, the team played in a tournament and players credited the way the team played to what they learned throughout the workshops. Specifically, players mentioned playing more cohesively: “It [the program] inspired everyone to work together ... we all worked together and were all on the same page” (HP3).

Lastly, the participants noted a few suggestions in terms of enhancing the leadership program. These recommendations included starting the workshops in the preseason, including more workshops during the season, and incorporating more team-building activities.

Discussion

The purpose of the current study was to implement and evaluate an athlete leadership development program that targeted the enhancement of athlete leadership behaviours, cohesion, and collective efficacy with older male youth hockey players. It was hypothesized that the athlete leadership development program would positively impact athlete leadership behaviours, cohesion, and collective efficacy. In general, the results partially support this hypothesis. On the one hand, the results from the paired-samples *t* test (Frequentist and Bayesian) indicated that the

athlete leadership development program did not significantly increase the measured constructs pre- to post-intervention. On the other hand, the findings from the focus group interview showed evidence that the athlete leadership development program was beneficial in helping the players improve their leadership behaviours along with maintaining perceptions of cohesion and collective efficacy. Further benefits from the focus group interview included better communication amongst team members and dealing with conflict more effectively. Beyond these findings, a number of aspects related to the results should be highlighted.

At first glance the quantitative results indicated that participants did not report using athlete leadership behaviours more frequently or have enhanced perceptions of cohesion and collectively efficacy following the athlete leadership development program, leading one to believe that the intervention was not successful. However, it may be premature to come to such a conclusion when considering the results of the focus group interview. In the following paragraphs, an examination of each construct measured (i.e., leadership, cohesion, and collective efficacy) in the present study is scrutinized.

Participants did not report using athlete leadership behaviours significantly more following the athlete leadership development program, as measured using the LSS (Chelladurai & Saleh, 1980) and the DTLI (Callow et al., 2009). This may be due to the baseline mean scores of the athlete leadership prior to the start of the intervention. While there are few athlete leadership intervention studies that have quantitatively measured athlete leadership behaviours, there is only one that has been conducted by Duguay et al. (2016) using quantitative methods that may help shed some light on the results of the current study. Similar to the present study, Duguay et al. measured athlete leadership behaviours using both the LSS and DTLI pre- and post-intervention. Most of the athlete leadership behaviours in their study increased from pre- to

post-intervention. Of interest to the current study are the descriptive statistics reported for the athlete leadership behaviours from the Duguay et al. study. In general, the mean scores of the athlete leadership behaviours post-intervention are similar or lower than the mean scores pre-intervention from the current study. As such, it is possible that a ceiling effect occurred in the current study. That is, participants in the current study were already using leadership behaviours to a high degree (i.e., mean of 3.85 on 5-point Likert scale) at the start of the athlete leadership development program. Therefore, it may have been difficult for the athlete leadership development program in the current study to enhance further the leadership behaviours. In fact, the findings of the focus group interview conducted with the team's leadership core (i.e., 1 captain and 3 assistant captains) helped shed light on the usefulness of the intervention on the development of various leadership behaviours. The participants mentioned learning how to step up and take action, regardless of whether you have a letter on your jersey. This is consistent with previous athlete leadership development research where participants in Duguay et al. mentioned that the leadership development program encouraged team members to step up and fulfill leadership roles. Similar to athletes in the current study, athletes in Duguay et al.'s study also mentioned that the leadership program helped the team get on the same page as to what is needed to be done for the team. Consistent with findings in the current study, athletes in Voight (2012) reported that the leadership program taught them what it takes to be a leader, and how to effectively communicate with teammates. Players in the current study also mentioned that the program helped put their performance-related frustrations into perspective, emphasizing that hockey is a team sport and as such the team must work together to overcome these frustrations. These findings are consistent with Voight's (2012) leadership development intervention program, where one participant noted the program helped them harness their frustrations.

Similar to the athlete leadership behaviours, cohesion showed no significant increase from pre- to post-intervention. This result is similar to the findings of a cohesion intervention studies. Herein, Senécal, Loughhead, and Bloom (2008) examined the effects of a season-long team-building intervention aimed at enhancing cohesion. Athletes in the intervention group showed no significant increase in cohesion from the beginning of the season to the end of the season, while athletes in the control condition showed a significant decrease in cohesion during the season. Based on their study (i.e., Senécal et al., 2008), it would appear that the intervention was helpful in maintaining levels of cohesion throughout the season. It is possible that a comparable effect occurred in the present study. However, it is difficult to ascertain this without the presence of a control condition. Nonetheless, when asked in the focus group interview concerning the cohesiveness amongst teammates, the participants mentioned that the leadership program brought the team closer together and made them feel more united, despite already being friends and getting along before the start of the program. It should be noted that the mean scores of task cohesion at baseline (i.e., pre-intervention; $M = 6.46$) in the current study was similar or higher to the level of task cohesion in previous research utilizing the YSEQ (e.g., Bruner, Boardley, & Côté, 2014, $M = 6.66$; McLaren, Eys, & Murray, 2015, $M = 7.01$; Vierimaa, Bruner, & Côté, 2018, $M = 5.99$); while the mean score for social cohesion in the current study ($M = 6.97$) was higher than in other studies (e.g., Bruner et al., 2014, $M = 6.27$; McLaren et al., 2015, $M = 4.02$). As such, a ceiling effect may have occurred in the present study. The fact that baseline data collection in the current study occurred five weeks after the season had started may help to explain why cohesion did not increase post-intervention. That is, the athletes were already a fairly cohesive team when the baseline were collected. Taken as a whole, the results from both the quantitative and qualitative analyses appear to show that at a minimum cohesion

levels were maintained throughout the season. These results are more impressive when you consider the losing record of the team. In fact, Muthiane, Rintaugu, and Mwisukha (2015) found that cohesion levels were significantly lower for athletes on losing teams than those on winning teams.

Consistent with athlete leadership and cohesion, collective efficacy also showed no significant increase from pre- to post-intervention. It is worth noting that the team finished the year with a 16.18% winning percentage, making it reasonable to expect a significant decrease in collective efficacy scores at post-intervention. An examination of the means indicated that the collective efficacy dimension of effort showed the largest decrease at post-intervention, which coincides with the responses from those in the focus group indicating that a lack of effort contributed the most to their poor on-ice performance. More specifically, the participants from the focus group interview mentioned that their poor winning record did not accurately reflect their on-ice performance, adding that their season could have gone differently if every player consistently put in a more sustained effort. Additionally, the participants in the focus group noted that individuals were more supportive despite their lack of on-ice success. This may have contributed to the team remaining confident in their ability to win despite only winning three games all season. In fact, research on resilience has identified social support as protective factor (Sarkar & Fletcher, 2014). That is, resilience has been shown to be a fundamental factor allowing athletes to overcome adversity (Joyce, Smith, & Vitaliano, 2005). Further, Freeman and Rees (2010) examined the stress-buffering effects of social support on self-confidence among university athletes, and found that high perceived emotional, esteem, and informational support from teammates buffered the potential detrimental effects of performance-related stressors on self-confidence. Relating to the current study, the participants from the focus group interview

mentioned many factors enabled them to handle their poor on-ice performance, including caring and supporting one another through performance slumps. Further, an athlete's level of confidence has been identified as a potential buffer against sport related pressures and stress (Galli & Vealey, 2008; Sarkar & Fletcher, 2014). In an examination of Olympic athletes, Fletcher and Sarkar (2012) identified confidence as an important factor in the resilience-stress-performance relationship. Additionally, Vealey and Chase (2008) argued that confidence is an essential component in athletes' ability to overcome setbacks. This may help explain why athletes in the current study remained confident in their team's ability to achieve their goals despite having poor on-ice performances.

There were two unique results that emanated from the focus group interview pertaining to the benefits of having participated in the athlete leadership development program revolving around conflict and communication. The participants noted that since the team had a poor winning record, there were moments of conflict amongst the team. However, the participants mentioned that the leadership development program provided them with the skills to communicate more effectively and, therefore, they were able to constructively deal with conflict by finding solutions that benefited all team members. According to Dionne, Yammarino, Atwater, and Spangler (2004), communication and conflict management are crucial processes to team development. Moreover, communication is an essential component in preventing, processing, and resolving conflicts (Rhind & Jowett, 2010). As such, athletes who accept each other and deal with disputes in constructive and integrative ways are better equipped at managing conflict (Sullivan & Feltz, 2003). Consequently, the leadership development program in the current study may have provided the participants with the necessary skills to more effectively deal with their intra-team conflicts, especially during a losing season.

The current study is not without limitations. First, the small sample size may have impacted the statistical power. Studies with low statistical power have a reduced ability to detect a true effect (Button et al., 2013). Therefore, it is important for future researchers to recruit more participants to further examine the impact of an athlete leadership development program. Second, it is unknown if the non-significant findings pertaining to athlete leadership behaviours, cohesion, and collective efficacy are the result of a ceiling effect. Therefore, including a control group would aide in determining whether the intervention was effective at maintaining the levels of these constructs and help buffer the effect of losing. Furthermore, the intervention in the current study was implemented several weeks after the season had begun. This was done in order for perceptions of leadership, cohesion, and collectively efficacy to form. However, delaying the start of the intervention may have led to a ceiling effect. Consequently, researchers conducting a leadership development program should consider starting the intervention at the beginning of the season, and consider collecting data at three time points throughout the season (beginning, middle, end). Additionally, the current program consisted of six workshops. Players who participated in the focus group mentioned wanting more workshops throughout the season. Future leadership development programs should include a larger number of workshops, possibly starting in the preseason. Another possible limitation to this study is the athlete leadership inventories used in this study (i.e., LSS and DTLI). These inventories were developed for adult populations and primarily utilized with intercollegiate athletes. Therefore, there may be a need for the development of a youth athlete leadership inventory to accurately capture the factors that are important to younger athletes.

Taken together, the results from the current study provide researchers, coaches, and mental performance consultants with preliminary evidence highlighting the importance of an

athlete leadership development program as a method of maintaining levels of athlete leadership behaviours, cohesion, and collective efficacy throughout the season. Specifically, it appears that the athlete leadership development program can potentially act as a buffer against the negative effects of poor performance. Hopefully, this study will lead to further examination into the benefits of developing athlete leadership behaviours, cohesion, and collective efficacy. Finally, it is hoped that the information presented in this study will encourage coaches and mental performance consultants to implement an athlete leadership development program with their teams.

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Table 1

Workshop Behaviours and Sample Activities

Behaviours and Sample Activities
Leadership Behaviours
<ul style="list-style-type: none"> • Training and Instruction <ul style="list-style-type: none"> – Emphasize and facilitate hard and strenuous training by instructing teammates in the skills, techniques, and tactics of your sport – <i>Reflection Activity</i>: athletes reflect on their technical, tactical, physical, and mental skills • Democratic Behaviour <ul style="list-style-type: none"> – Allow teammates to participate in decision-making, when appropriate – <i>Reflection Activity</i>: athletes reflect on how they could encourage inclusive decision making on their team • Social Support <ul style="list-style-type: none"> – Show concern for teammates' welfare by establishing warm interpersonal relationships – <i>Scenarios</i>: athletes given three cases and explore options for providing social support • Positive Feedback <ul style="list-style-type: none"> – Reinforce teammates by recognizing and rewarding good performance – <i>Reflection Activity</i>: athletes share influential positive feedback they have received and explain what made it effective • Individual Consideration <ul style="list-style-type: none"> – Pay attention to and show respect for each teammate – <i>Reflection Activity</i>: athletes reflect on how they could pay more attention and show respect for each teammate • Inspirational Motivation <ul style="list-style-type: none"> – Motivate and inspire teammates by viewing the future with optimism, projecting a vision, and communicating that the team's vision is achievable

- *Motivators*: athletes discuss the motivational effects of a sports video clip by reflecting on how they become motivated to perform their best
- Intellectual Stimulation
 - Encourage teammates' efforts to be innovative and creative by reframing problems and approaching old situations with new methods and perspectives
 - *Breaking Down Roadblocks*: athletes examine how their team has handled various roadblocks and whether they could have been handled differently
- Acceptance of Group Goals
 - Ensure that everyone understands and accepts the team's goals
 - *Making the Link*: athletes make a link between their individual goals and their team goals
- High Performance Expectations
 - Express expectations of excellence, quality, and high performance
 - *Great Expectations*: athletes explore the expectations they hold for themselves and their teammates
- Appropriate Role Model
 - Set examples for teammates that are consistent with the values the team promotes
 - *Reflection Activity*: athletes reflect on how they be a role model on their team

Cohesion

- Task Cohesion
 - Tendency of the group to stick together to achieve its objectives
 - *Marshmallow Spaghetti Tower*: athletes work together to build the tallest tower possible
- Social Cohesion
 - Feelings of closeness, similarity, and bonding of the group as a social unit
 - *The Human Knot*: athletes form a circle and lock arms and work together to untangle themselves

Collective Efficacy

- Team's confidence in their ability to achieve their goals
 - *Flying Cotton Balls*: athletes build launching machine to throw cotton balls
-

Table 2

Descriptive Statistics for the Athlete Leadership Behaviours

Variable	Pre			Post		
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α
TI	3.24	.61	.87	3.24	.62	.83
DB	3.59	.76	.75	3.61	.83	.88
AB	2.53	.83	.81	2.86	.83	.71
SS	3.96	.58	.77	3.74	.59	.71
PF	4.57	.48	.85	4.11	.76	.79
IC	3.95	.84	.59	3.98	.65	.83
IM	4.04	.60	.76	3.83	.69	.62
IS	3.57	.66	.85	3.26	.96	.90
AGG	4.24	.62	.78	3.83	.60	.61
HPE	4.20	.61	.66	4.14	.53	.59
ARM	4.06	.61	.77	3.94	.77	.87
CR	4.29	.49	.79	4.11	.58	.83

Note. Scores for these leadership behaviours can range from 1-5. TI = Training and Instruction; DB = Democratic Behaviour; Autocratic Behaviours; SS = Social Support; PF = Positive Feedback; IC = Individual Consideration; IM = Inspirational Motivation; IS = Inspirational Motivation; AGG = Fostering Acceptance of Group Goals and Promoting Teamwork; HPE = High Performance Expectations; ARM = Appropriate Role Model; CR = Contingent Reward.

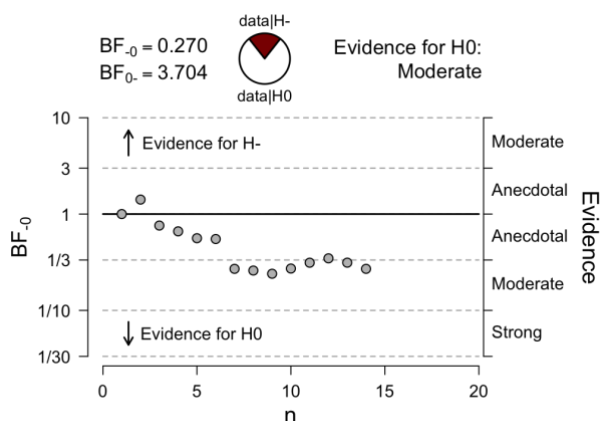
Table 3

Descriptive Statistics for Outcome Variables of Cohesion and Collective Efficacy

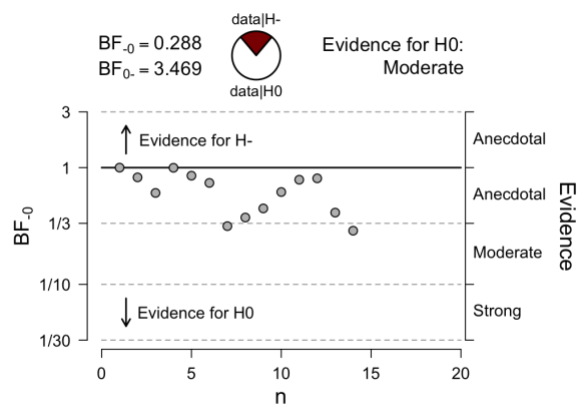
Variable	Pre-Intervention			Post-Intervention		
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α
Cohesion						
Task	6.46	1.09	.85	6.54	1.55	.93
Social	6.97	1.98	.96	6.98	1.73	.94
Collective Efficacy						
Ability	6.95	1.94	.85	6.77	1.61	.86
Effort	7.73	1.35	.77	7.02	1.75	.83
Persistence	7.27	1.65	.82	6.99	1.71	.90
Preparation	7.57	1.69	.90	7.23	2.03	.92
Unity	7.61	1.36	.88	7.52	1.37	.75

Note. Scores for cohesion range from 1-9. Scores for the collective efficacy can range from 1-10.

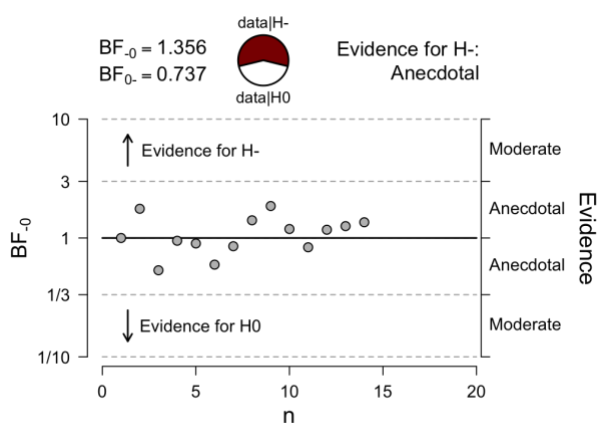
Training and Instruction



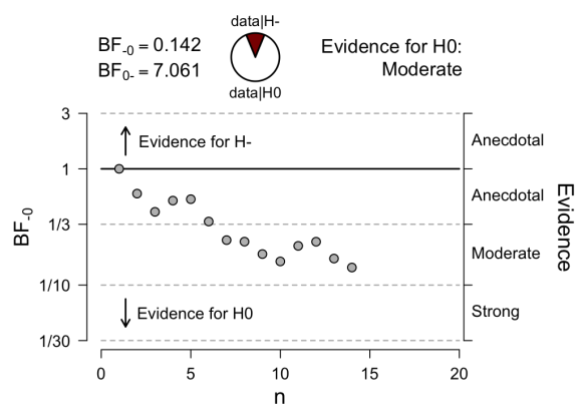
Democratic Behaviour



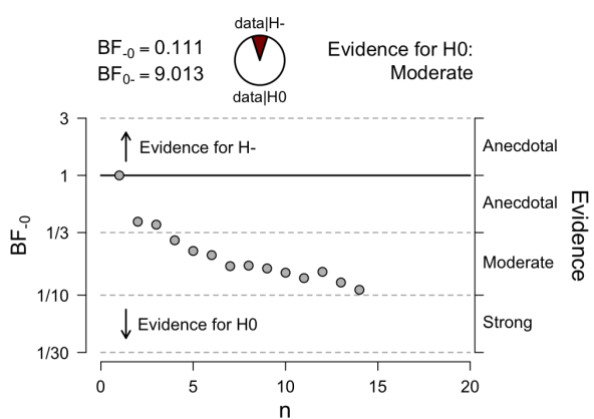
Autocratic Behaviour



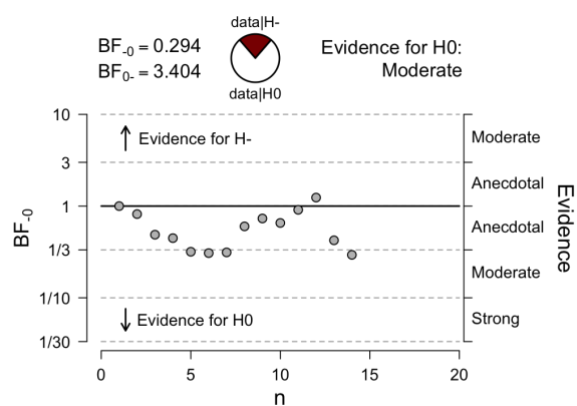
Social Support



Positive Feedback



Individual Consideration



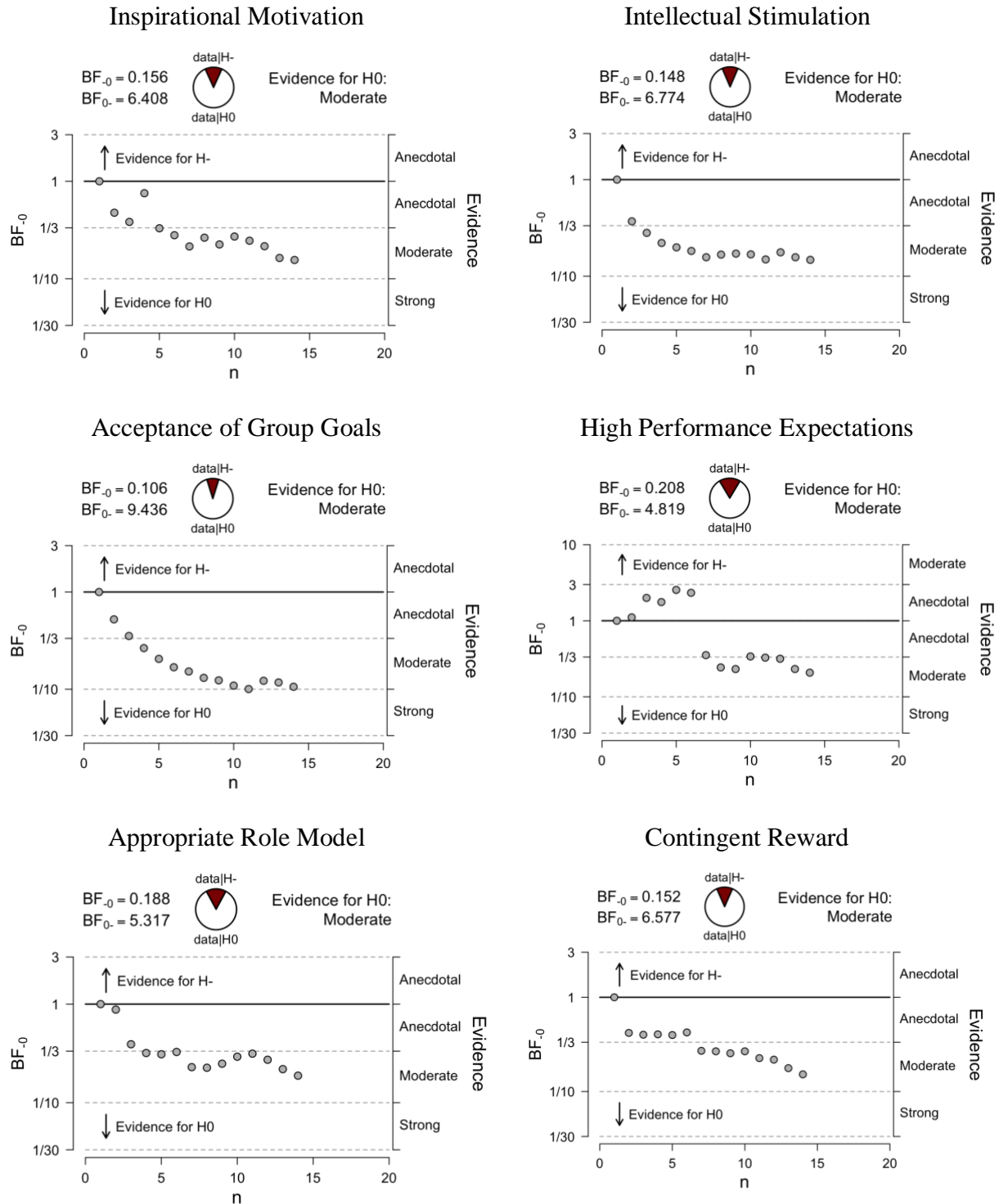


Figure 1. Sequential Analysis for Athlete Leadership Behaviours.

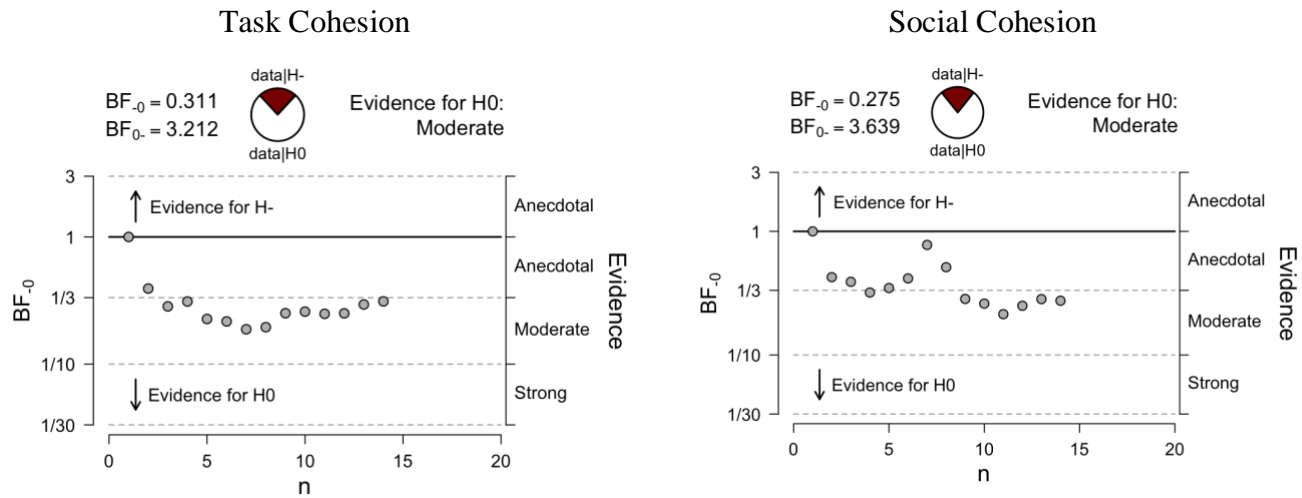


Figure 2. Sequential Analysis for Cohesion.

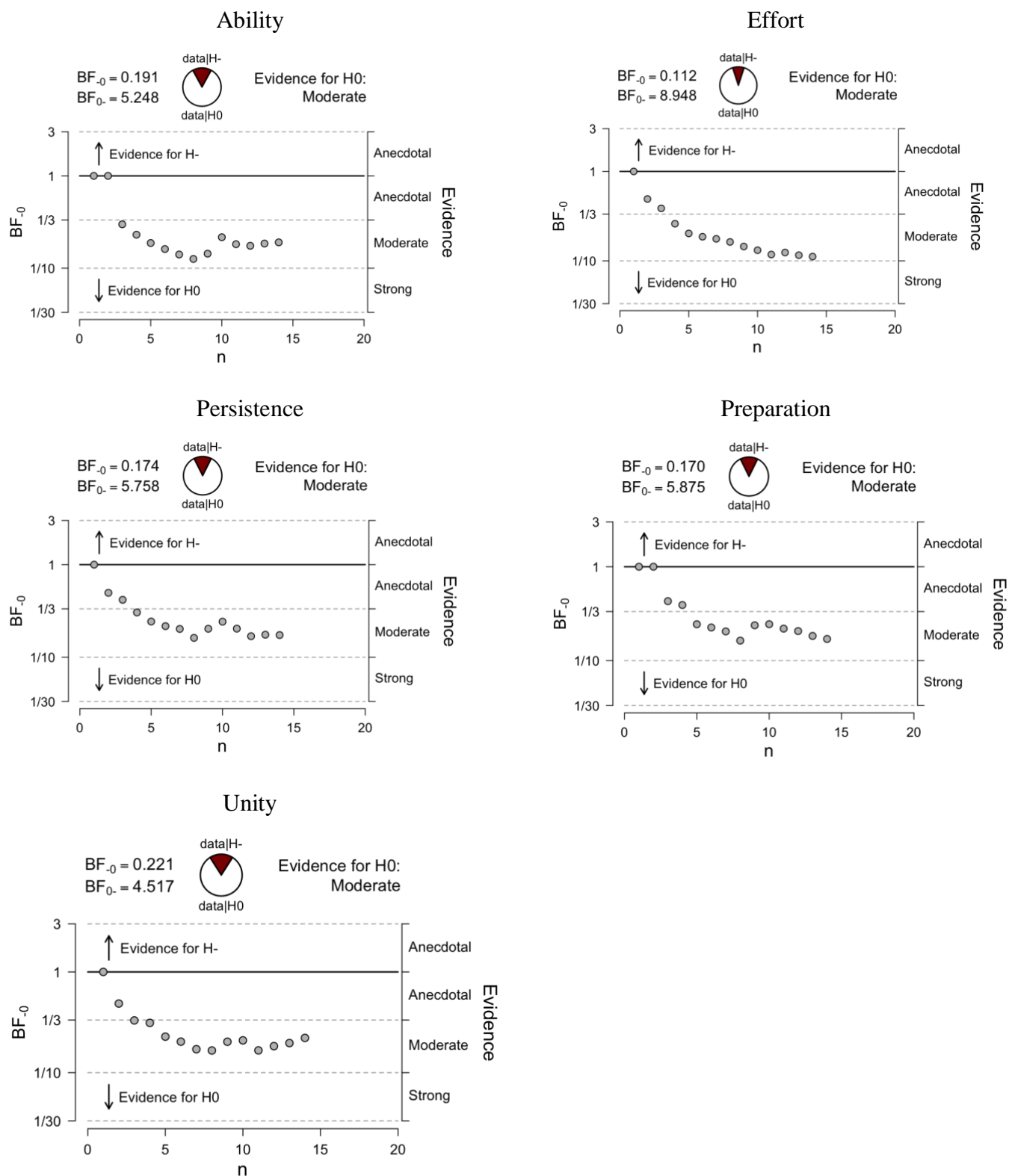


Figure 3. Sequential Analysis for Collective Efficacy.

LITERATURE REVIEW

Research in the field of sport leadership has highlighted the impact athlete leaders can have on a team. The review of the literature will be divided into three parts: a) leadership, b) cohesion, and c) collective efficacy.

Leadership

The review of the leadership literature will begin by defining leadership in sport, followed by athlete leadership. Next, two models developed for the study of leadership in sport will be explained, followed by a description of three questionnaires used to measure athlete leadership. Next, a review of the research on athlete leadership will be covered. Finally, the section will conclude with a review of the literature on athlete leadership development interventions.

Definition of Leadership

Effective leadership has been identified as a crucial factor in achieving team success (Zaccaro, Rittman, & Marks, 2002). Given the importance of leadership, many theoretical frameworks utilizing different definitions have been used to study leadership. Some classifications view leadership as a group process, some as a behaviour, some as an instrument of goal attainment, and others consider leadership from a personality perspective (Bass, 1990). Although leadership has been conceptualized in many ways, Northouse (2001) identified the similarities amongst the various conceptualizations and defined leadership as “a process where the individual influences a group of individuals to achieve a common goal” (p. 3). Based on this definition, Northouse outlined four key characteristics of leadership. First, leadership is a process, meaning it is not a trait possessed by leaders, but rather an interactive event whereby the leader affects and is affected by followers. Second, leadership involves influence, referring to

how leaders affect their followers. According to Northouse, there would be no leadership without influence. Next, leadership occurs in a group context. That is, leadership involves influencing a group towards achieving common goals. Finally, leadership involves leaders attending to and guiding individuals towards the common goals of the group.

Athlete Leadership in Sport

Gould, Hodge, Peterson, and Petlichoff (1987) stated that coaches consider athlete leadership as an important component for effective team performance. Although understudied, the importance of athlete leadership in sports teams has received some attention (Loughead, Hardy, & Eys, 2006). To encourage research in the area of athlete leadership, Loughead et al. (2006) defined athlete leadership as “an athlete occupying a formal or informal role within a team who influences team members to achieve a common goal” (p. 144). Formal athlete leaders are those who are assigned to their leadership role by the coach or through team selection (e.g., captain, assistant captain), whereas informal athlete leaders (e.g., veteran athlete) emerge through their interactions with other teammates.

Models of Leadership in Sport

Frameworks used to study athlete leadership have largely been based on organizational psychology and sport coaching research. One of the most widely used models is Chelladurai's (2007) Multidimensional Model of Leadership (MML). The MML (see Figure 4) is a linear model comprised of three components: a) antecedents, b) leader behaviours, and c) consequences. Antecedents consist of situational (i.e., team norms and goals), leader (i.e., leaders' personal characteristics), and member characteristics (i.e., members' personality, experience, and ability). The second component, leader behaviours, consists of three behaviour types: a) required, b) preferred, and c) actual. Required behaviours refer to the kind of

behaviours the leader is expected to display. Preferred behaviours refer to the preferences of team members for certain leadership behaviours. The preferences for certain behaviours from the leader are determined by the team's situation and the nature of the group. Lastly, actual behaviours refer to how the athlete leader behaves, and are largely dependent on the leader's personal characteristics, such as personality, expertise, and experience. Finally, the consequences in the model refer to outcomes, such as performance and satisfaction.

An additional framework used to assess athlete leadership is Avolio's (1999) Full Range Model of Leadership (FRML). The FRML (see Figure 5) focuses on three types of leadership: a) transformational, b) transactional, and c) laissez-faire. According to Bass and Riggio (2006), transformational leaders inspire their followers to commit to the team's common goal and vision, challenge them to solve problems, and help them grow and develop into leaders themselves. The FRML highlights four different transformational leadership behaviours: a) idealized influence (i.e., leader sets a good example and instils pride), b) inspirational motivation (i.e., leader outlines a vision that is inspiring to followers), c) intellectual stimulation (i.e., leader challenges assumptions and encourages creativity), and d) individualized consideration (i.e., leader attends to individual follower's needs and concerns).

Transactional leadership occurs when the leader either rewards or disciplines their followers based on their performance, and involves two main types of contingent reinforcement: a) contingent reward (i.e., leader recognizes and rewards followers for good performance) and b) management-by-exception (i.e., leader punishes followers' mistakes) (Avolio, 1999; Hopton, Phelan, & Barling, 2014).

Finally, laissez-faire leadership represents the avoidance of leadership and is the most ineffective leadership style (Bass & Riggio, 2006). Leaders employing a laissez-faire leadership

style delay their actions, refuse to make decisions, and ignore responsibilities (Hoption et al., 2014).

Measurement of Athlete Leadership

The Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980; see Appendix B, originally developed to measure coach leadership, is one of the most widely used leadership measures in sport. Loughhead and Hardy (2005) were among the first to use the LSS to measure athlete leadership behaviours. The LSS is a 40-item questionnaire that assesses five leadership behaviours: training and instruction, positive feedback, social support, democratic behaviour, and autocratic behaviour. The first dimension, training and instruction (13 items), examines leader behaviours aimed at improving the athlete's performance through physical and skill development. The second dimension, democratic behaviour (9 items), examines the extent to which the leader involves his/her teammates in the decision-making process. The third dimension, autocratic behaviour (5 items), measures the athlete leader's independence in decision-making. The fourth dimension, social support (8 items), assesses the leader's concern for his/her teammates' welfare. Finally, the fifth dimension, positive feedback (5 items), reflects leaders recognizing and rewarding their followers for good performance. All responses on the LSS are scored on a 5-point Likert scale ranging from (1) *never* to (5) *always* with higher scores reflecting higher occurrences of the leadership behaviours. The only modification made to the LSS to measure athlete leadership, as noted by Loughhead and Hardy, concerned the stem that preceded the items. In the original version, the stem reads "My coach" whereas in the athlete leader version the stem reads "The athlete leader(s) on my team." Research has shown that the five-factor model has reasonably good fit: CFI = .99, TLI = .98, and RMSEA = .05 (Vincer & Loughhead, 2010). Loughhead and Hardy (2005) reported acceptable Cronbach's alpha: training

and instruction ($\alpha = .87$), democratic behaviour ($\alpha = .81$), autocratic behaviour ($\alpha = .75$), social support ($\alpha = .86$), and positive feedback ($\alpha = .85$).

Another questionnaire used to measure athlete leadership behaviours is the Differentiated Transformational Leadership Inventory for Sport (DTLI; Callow, Smith, Hardy, Arthur, & Hardy, 2009; see Appendix C). The DTLI is a 31-item questionnaire that measures six transformational behaviours and one transactional behaviour. The first behaviour, inspirational motivation (four items), refers to leaders developing, articulating, and inspiring others with their vision for the future. The second behaviour, appropriate role modeling (5 items), refers to leaders setting examples for their followers to follow. The third behaviour, individual consideration (4 items), refers to the leaders being empathetic, supportive, and attending to individual follower's needs and concerns. The fourth behaviour, intellectual stimulation (4 items), refers to the degree to which the leaders challenge assumptions, encourage their followers to be creative, and are open to new ways to solve problems. The fifth behaviour, high performance expectations (5 items), refers to leaders showing that they have high standards for the team. The sixth behaviour, fostering acceptance of group goals (3 items), refers to leader behaviours that promote teamwork to achieve team goals. Finally, contingent reward (6 items) refers to leaders recognizing and rewarding their followers for good performance. Each item from the inventory is scored on a 5-point Likert scale ranging from (1) *not at all* to (5) *all the time*. The DTLI has acceptable internal consistency and factorial validity: CFI = .98 and RMSEA = .05 (Callow et al., 2009).

Cronbach's alpha's were as follows: individual consideration ($\alpha = .66$), fostering acceptance of group goals ($\alpha = .73$), high performance expectations ($\alpha = .86$), appropriate role model ($\alpha = .81$), intellectual stimulation ($\alpha = .82$), inspirational motivation ($\alpha = .75$), and contingent reward ($\alpha = .82$) (Callow et al., 2009).

Finally, the Multifactor Leadership Questionnaire (MLQ-5X; Bass & Avolio, 1995) is a 36-item questionnaire that measures five transformational, three transactional, and one laissez-faire leadership behaviours. Each item from the inventory is scored on a 5-point Likert scale ranging from (0) *not at all* to (4) *frequently*, if not always. The first transformational behaviour, idealized influence (8 items), refers to the leader acting like a role model. The second behaviour, inspirational motivation (4 items), refers to the leader motivating and inspiring others. The third behaviour, intellectual stimulation (4 items), refers to the leader encouraging others to challenge assumptions. The fourth behaviour, individual consideration (4 items), refers to the leader paying attention to individual needs. The first transactional behaviour, contingent reward (4 items), refers to the leader rewarding followers for their performance. The second behaviour, management-by-exception active (4 items), refers to the leader taking action to avoid mistakes made by the follower. The third behaviour, management-by-exception passive (4 items), refers to the leader intervening after mistakes. Finally, the laissez-faire leadership behaviour (4 items) refers to an absence of leadership behaviours. A confirmatory factor analysis (CFA) conducted by Price and Weiss (2013) found a poor model fit with high correlations between leadership factors.

Research on Athlete Leadership

The review of the research on athlete leadership in this section will focus on three main areas: 1) characteristics of athlete leaders, 2) number of athlete leaders within teams, and 3) the types of leadership behaviours exhibited by athlete leaders.

Characteristics of athlete leadership. Research on athlete leadership has examined some of the key characteristics of athlete leaders (Bucci et al., 2012; Dupuis, Bloom, & Loughhead, 2006; Fransen, Vanbeselaere, De Cuyper, Vande Broek, & Boen, 2016; Loughhead et

al., 2006). Loughead et al. (2006) examined 258 varsity student-athletes from two Canadian universities examining the characteristics (i.e., formal vs. informal role, starting status, and tenure) of athlete leaders serving task, social, and external leadership roles. Leadership comes from athletes who occupy both formal and informal leadership roles. Specifically, formal athlete leaders were more likely to be identified as team leaders, whereas informal leaders were viewed as peer leaders. Furthermore, athletes who held either a formal or informal leadership role were more likely to be starters, supporting the notion that higher athletic ability plays a role in being regarded as an athlete leader.

Dupuis, Bloom, and Loughead (2006) conducted semi-structured interviews with six former varsity male hockey captains examining, among other things, the characteristics of these athlete leaders. The characteristics that emerged as important for team leaders to display were being effective communicators, remaining positive, controlling their emotions, and remaining respectful to their teammates and coaches. Bucci et al. (2012), using a similar protocol as Dupuis et al., interviewed six elite level hockey coaches to identify characteristics of successful athlete leaders. Coaches mentioned a strong work ethic, leading by example, and following coach's instructions as being essential. Additionally, coaches mentioned generosity, honesty, and taking care of teammates as being important qualities in their athlete leaders.

Finally, Fransen et al. (2016) surveyed 4,451 athletes from a variety of team sports across Belgium to examine the characteristics of athlete leaders across task, motivational, social, and external leadership roles. Results indicated that task leaders were typically more talented, experienced, and saw more playing time. Task leaders were all starters compared to only 50% of social leaders having a starting position. Additionally, task leaders were perceived as being involved in tactical communication, helping the team turnaround bad performances. Motivational

leaders were perceived as being strong interpersonal communicators. These leaders were characterized by a positive body language, optimistic attitude, being enthusiastic, and having a strong work ethic. These findings support previous research indicating that work ethic is an important characteristic in athlete leaders (Bucci et al., 2012). Furthermore, motivational leaders were perceived as having the highest impact on team confidence. Finally, social leaders tended to be the most socially accepted within their team, and external leaders were typically older and had more tenure on their respective teams.

Number of athlete leaders. Another approach to studying athlete leadership has been to examine the number of athlete leaders within a team (Crozier, Loughhead, & Munroe-Chandler, 2013; Eys, Loughhead, & Hardy, 2007; Hardy, Eys, & Loughhead, 2008; Loughhead et al., 2006). Loughhead et al. (2006) examined the amount of athlete leaders present on interactive sport teams. To do this, the authors calculated the dispersion, or percentage of athlete leaders, for both team and peer leaders. The number of team and peer leaders was dependent on the role they played. Specifically, for peer athlete leaders, 35% held a task leadership role (i.e., directing the team towards achieving a goal), 47% a social leadership role (i.e., solving interpersonal conflicts), and 31% an external leadership role (i.e., carrying out duties outside the team environment). For athletes considered team leaders, 15% held a task leadership role, 11% a social leadership role, and 8% an external leadership role. Building on these results, Eys et al. (2007) surveyed athletes from a variety of interactive sport teams to examine athlete leadership dispersion and athlete satisfaction. Athletes who perceived an equal number of leaders across the three leadership roles (task, social, external) indicated having greater satisfaction than those with an unequal number of leaders.

Finally, Crozier et al. (2013) sampled 104 varsity athletes using an open-ended questionnaire to discover what constitutes the ideal number of formal and informal athlete leaders on a team and the benefits of having these leaders. Eighty-five percent of a team's roster should be comprised of athlete leaders, with 19% occupying a formal role and 66% occupying an informal role. These results reinforce the notion that athlete leadership is a shared construct, and that numerous members of a team can hold a leadership role. The benefits attributed to the presence of athlete leaders included an increase in team attributes (e.g., resources), team structure (e.g., role clarity), cohesion, team processes (e.g., communication), team outcomes (e.g., increased performance), individual outcomes (e.g., satisfaction), and leadership behaviours.

Behaviours of athlete leaders. Several studies have investigated the impact of athlete leadership behaviours on certain team constructs, such as team cohesion. Dupuis et al. (2006) qualitatively examined the leadership behaviours of six formal athlete leaders (i.e., team captains) and found the leadership behaviours of training and instruction and social support were positively related to both task and social cohesion. From a quantitative research perspective, Vincer and Loughhead (2010) found that training and instruction and social support were positively related to social and task cohesion. However, democratic behaviour was positively associated with task cohesion only, while autocratic behaviour was negatively related to both task and social cohesion. Finally, Burkett, Blom, Razon, and Johnson (2014) examined the relationship of formal and informal athlete leadership behaviours on team cohesion and found that informal leaders were perceived as showing more social support than formal leaders, supporting previous research suggesting that informal leaders are more involved in interpersonal matters (Loughhead et al., 2006). However, no differences were found between formal and informal leaders in relation to the leadership behaviours of training and instruction, democratic,

autocratic, and positive feedback. The authors suggest that a lack of role clarity may have resulted in informal leaders fulfilling these duties alongside formal leaders. In terms of their impact on cohesion, training and instruction, democratic behaviours, social support, and positive feedback were positively related to task and social cohesion, while autocratic behaviours were negatively related to task and social cohesion. Finally, a perceived increase in training and instruction led to an increase in task and social cohesion.

Numerous studies have used transformational leadership theory as a framework to study athlete leadership because peer leadership in sport emphasises the leader-follower relationship (Price & Weiss, 2011). For example, Callow et al. (2009) examined the relationship between transformational leadership behaviours and team cohesion. Transformational leadership behaviours of individual consideration (i.e., leaders attending to individual follower's needs and concerns), fostering acceptance of group goals (i.e., leader behaviours that promote teamwork to achieve team goals), and high-performance expectations (i.e., leaders showing that he/she expects high standards from the team) were positively related to task cohesion. Additionally, fostering acceptance of group goals predicted social cohesion. Furthermore, Price and Weiss (2011) found that effective peer transformational leadership was associated with players who reported greater task and social cohesion. Specifically, athletes who rated themselves higher in pro-social leadership behaviours reported greater task and social cohesiveness within their teams. Furthermore, athletes who rated themselves higher in peer transformational leadership behaviours reported greater task and social cohesion, and those rated higher by teammates on instrumental and pro-social behaviours reported greater social cohesion. Building on these results, Price and Weiss (2013) found that coach transformational leadership behaviours were positively related to athletes' perceived competence, enjoyment, task cohesion, and collective

efficacy, whereas, peer transformational leadership was positively related to task and social cohesion. That is, athletes who perceived their coaches as engaging in more frequent motivational and inspirational behaviours enjoyed playing more, felt more confident in their abilities, and felt more prepared to be successful in future team performances. Furthermore, athletes who rated their peer leaders as more inspiring and motivating also viewed their teams as working well together to accomplish tasks. Overall, coach and peer transformational leadership behaviours led athletes to see their teams as more supportive, confident, and efficient in achieving goals.

Athlete Leadership Development

This section will cover athlete leadership development. The section will start by defining leadership development in sport. The section will end by covering research examining the topic.

Definition of Leadership Development

The term leadership development can be an ambiguous term. The reason for this is related to the fact that the definition of leadership development has been defined as “leadership development” and as “leader development” (Day, 2001). To clarify, leader development has the goal of enhancing human capital by putting an emphasis on individual knowledge, skills, and abilities associated with formal leadership roles. In contrast, leadership development enhances social capital by expanding the collective capacity of team members to engage effectively in leadership roles and processes (Day, 2001).

Athlete Leadership Development Research in Sport

The amount of research focusing on athlete leadership development programs is limited. Among the few articles, Gould and Voelker (2010) described a captain’s leadership training program developed to teach high school captains how to be effective leaders. The program was

administered in one day and involved three breakout sessions: (a) what you need to know as a leader, (b) handling common team problems, and (c) getting your questions answered. Overall, these high school captains reported the workshops to be helpful and enjoyable. Seeking to expand Gould and Voelker's one-day workshop format, Blanton, Sturges, and Gould (2014) described a two-year long high school youth leadership club. Specifically, the program was designed to help student-athletes develop their leadership skills enabling these high school athletes to deliver a leadership program to middle school students.

Voight (2012) conducted a season-long athlete leadership development program with two NCAA Division I volleyball teams. The program consisted of 15 stages (e.g., leadership assessment, leadership roles and responsibilities, captain platform) and was developed to help improve team communication and functioning, assist the team on a daily basis, and foster the personal leadership development of team leaders. The results of individual interview with the team captains at the end of the season revealed a positive response to the leadership development program. The captains reported the program had a positive impact on their personal leadership skills, team cohesion, and team and teammate performance.

Finally, Duguay, Loughhead, and Munroe-Chandler (2016) developed and administered a season-long athlete leadership development program. A unique feature was that the program was designed to target both human and social capital and included every team member. A total of 27 female varsity athletes participated in four 1 hour-long leadership workshops throughout the season. Human capital was operationalized as the athlete leadership behaviours. The program positively influenced training and instruction, democratic behaviour, social support, positive feedback, appropriate role model, inspirational motivation, high performance expectations, and fostering acceptance of group goals and promoting team work. Social capital was operationalized

as cohesion, communication, peer motivational climate, and athlete satisfaction. Based on the quantitative analyses, both athlete satisfaction and peer motivational climate levels significantly increased following the intervention. However, cohesion and communication levels were not significantly different pre/post intervention. It is worth noting however that both cohesion and communication had increased following the intervention, indicating that the findings were trending in the right direction.

Cohesion

The review of the sport cohesion literature will begin by defining this construct. Next, a conceptual model and framework developed to study cohesion in sport will be explained, followed by the description two questionnaires used to measure cohesion.

Definition of Cohesion

Cohesion has been one of the most studied constructs across many disciplines such as business, military, and sport psychology (Carron & Brawley, 2000). Given its pervasiveness, the concept of cohesion is considered to be one of the most important small group variables (Lott & Lott, 1965). Carron (1982) defined cohesion as “a dynamic process which is reflected in the tendency for the group to stick together and remain united in the pursuit of its goals and objectives” (p. 259). This definition was revised by Carron, Brawley, and Widmeyer (1998) to include an affective component. The revised definition viewed cohesion 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” (p. 213). At the core of this definition are four characteristics of cohesion. First, cohesion is considered multidimensional, meaning there are multiple reasons why a group sticks together. Next, cohesion is considered dynamic, inferring cohesion is not a trait, and can be fostered over time.

The third characteristic states that cohesion serves an instrumental purpose, where the group's goals and objectives serve as the driving force to bring the group together. Finally, cohesion has an affective component, meaning the interpersonal interactions within the group can create positive or negative affect in certain group members.

Conceptual Model of Cohesion

Based on the definition of cohesion, Carron, Widmeyer, and Brawley (1985) advanced a conceptual model of cohesion. The model is divided into two main categories: 1) group integration (i.e., closeness and bond within the group), and 2) individual attractions (i.e., individual's personal feelings about the group and motivations to remain in the group). These two categories are further broken down into task (i.e., motivation toward achieving the group's goals) and social components (i.e., motivation to develop and maintain social relationships within the group) (Carron et al., 1998). The combination of these categories resulted in Carron et al. identifying four dimensions of cohesion. Individual Attractions to the Group-Task (ATG-T), refers to individual team member's feelings about his/her own contribution to the group's task, productivity, and goals. Individual Attractions to the Group-Social (ATG-S), represents individual team member's feelings about his/her personal acceptance, and how socially integrated he/she feels with the group. Group Integration-Task (GI-T), describes individual team member's feelings concerning the closeness and unity of the group towards achieving the team's goals and objectives. Lastly, Group Integration-Social (GI-S) denotes an individual team member's perception of unity and bonding within the group in social situations.

Framework to Study Cohesion in Sport

Carron (1982) developed a linear framework of cohesion to conduct research in sport. This framework is comprised of inputs (i.e., the antecedents of group cohesiveness), throughputs

(i.e., task and social cohesion), and outputs (i.e., outcomes). The throughputs in Carron's (1982) linear framework refer to the four dimensions of cohesion (i.e., ATG-T, ATG-S, GI-T, GI-S) described earlier. According to Carron, the antecedents are the factors that contribute to the development of cohesion in sport teams, and fall into four categories: environmental, personal, group, and leadership factors. Environmental factors refer to general influences such as player eligibility and/or transfer rules, athletes' contractual obligations, and team goals. Personal factors refer to individual characteristics such as motivations, age, and gender. Group factors refer to characteristics such as team member behaviours and the duration of time team members have remained together. Finally, leadership factors refer to characteristics of the leader such as leadership behaviours. The outcomes of cohesion include, but are not limited to, performance and the intention to return.

Measurements of Cohesion

To measure cohesion, Carron et al. (1985) developed the Group Environment Questionnaire (GEQ). The GEQ is an 18-item questionnaire that assesses the four dimensions of cohesion. All items are scored on a 9-point Likert scale, ranging from (1) *strongly disagree* to (9) *strongly agree*. The first dimension, ATG-T ($\alpha = .65$), contains four items and examines an individual team member's feeling about his/her own contribution to the group's task, productivity, and goals (Carron et al., 1998). The second dimension, ATG-S ($\alpha = .60$), contains five items and examines an individual team member's feeling about his/her personal acceptance, and how socially integrated he/she feels with the group. The third dimension, GI-T ($\alpha = .71$), contains five items and examines an individual team member's feeling of closeness and unity of the group towards their goals and objectives. The fourth dimension, GI-S ($\alpha = .72$), contains four items and examines individual team member's perceptions of unity and bonding within the group.

in social situations.

With a growing number of studies examining cohesion in youth sports, the Youth Sport Environment Questionnaire (YSEQ; Eys, Loughead, Bray, & Carron, 2009; see appendix D) was developed to appropriately measure adolescent athletes aged 13-17 years. The YSEQ is an 18-item questionnaire measuring task and social cohesion. All items are scored on a 9-point Likert scale ranging from (1) *strongly disagree* to (9) *strongly agree*, with higher scores reflecting greater perceptions of cohesion. Task cohesion ($\alpha = .89$) contains eight items and social cohesion ($\alpha = .94$), contains eight items. There are also two negatively scored items included to detect invalidating responses.

Collective Efficacy

The section of the literature review will begin by defining collective efficacy, followed by a description of the characteristics of collective efficacy and the questionnaires used to study collective efficacy. The section will conclude by reviewing the research on collective efficacy in sport.

Definition of Collective Efficacy

Collective efficacy is different from self-efficacy. Self-efficacy is an individual level phenomenon, whereas collective efficacy is a team-level attribute (Bandura, 1997). Therefore, athletes can hold beliefs about their own abilities (i.e., self-efficacy) that differ from the beliefs in their team's ability (i.e., collective efficacy). However, Bandura posited that collective efficacy is rooted in self-efficacy, in that both constructs are potential cognitive mediators of performance that operate in a similar manner (Myers & Feltz, 2007).

In sport, there are two main definitions used to study collective efficacy. The first from Bandura (1997) defined collective efficacy as a "group's shared belief in its conjoint capability

to organize and execute the courses of action required to produce given levels of attainment” (p. 477). According to Bandura, a team’s collective efficacy contributes to optimal team functioning, motivation, and perseverance, and influences individual team members’ behaviour, effort, and persistence in the face of adversity. Teams with higher collective efficacy should outperform and be more persistent in the face of adversity than teams lower in collective efficacy (Bandura, 1997). This definition has guided the majority of research on collective efficacy in sport.

The second definition from Zaccaro, Blair, Paterson, and Zazanis (1995) defined collective efficacy as “a sense of collective competence shared among individuals when allocating, coordinating, and integrating their resources in a successful concerted response to specific situational demands” (p. 309). Even though these two definitions are similar, Zaccaro et al. were more explicit than Bandura in putting emphasis on the interactive factors (i.e., allocating, coordinating, integrating) and suggesting that they should be directly measured (Myers & Feltz, 2007).

Characteristics of Collective Efficacy

Bandura conceptualized collective efficacy as a state rather than a trait, stating that collective efficacy is more than the sum of individual team members’ efficacy beliefs. Collective efficacy represents a shared belief among teammates. That is, beliefs are considered shared when there is a high degree of agreement among members (Chow & Feltz, 2014). Collective efficacy also serves as a stronger predictor of team performance than self-efficacy because it includes team members’ beliefs about the level of interaction and coordination within the team (Bandura, 1997). Finally, the extent to which a task requires interdependence among team members will influence a team’s collective efficacy. Specifically, low interdependent sports (e.g., tennis) rely

on the sum of individual performances (Bandura, 1997). In contrast, highly interdependent sports (e.g., hockey) rely on the coordination and interaction among team members to perform (Bandura, 1997).

Measurement of Collective Efficacy

This section will review two questionnaires used to measure collective efficacy in sport. Although both questionnaires were constructed based on Bandura's guidelines for constructing efficacy scales, the first questionnaire was developed in a way that can be applied across a variety of sports, while the second questionnaire was designed specifically for hockey.

To assess athletes' perceptions of their team's collective efficacy, Short, Sullivan, and Feltz (2005) developed the Collective Efficacy Questionnaire for Sports (CEQS; see Appendix E). The CEQS is a 20-item questionnaire that measures the five major dimensions of group efficacy: ability (four items; e.g., "Your team's ability to outplay the opposing team"), effort (four items; "Your team's ability to demonstrate a strong work ethic"), persistence (four items; "Your team's ability to perform under pressure"), preparation (four items; "Your team's ability to be ready"), and unity (four items; "Your team's ability to resolve conflicts"). All items are scored on an 11-point Likert scale, ranging from (0) *not at all confident* to (10) *extremely confident*, with higher values representing a greater rating of the team's confidence in their ability to successfully achieve a goal. A CFA revealed a good model fit: CFI= .92, NNFI= .90, SRMR= .06, and RMSEA= .10. Cronbach's alphas were as follows: ability ($\alpha = .91$), effort ($\alpha = .87$), persistence ($\alpha = .81$), preparation ($\alpha = .87$), and unity ($\alpha = .85$) (Short et al., 2005).

In an effort to accurately assess the collective efficacy of hockey teams, Feltz and Lirgg (1998) developed a measure specifically for hockey. The measure was constructed following Bandura's (1986) recommendations for constructing efficacy measures. The measure includes

eight items assessing the degree to which players have confidence in their team's ability to perform important hockey-related game skills. In particular, the skills are a) outskate, b) out-check, c) force more turnovers, d) bounce back from performing poorly, e) score on power plays, f) kill penalties against the opposing team, and g) have an effective goaltender who could block a high percentage of goal attempts. All items are scored on an 11-point Likert scale ranging from (0) *cannot do at all* to (10) *certain can do*, with higher values representing a greater rating of player's confidence in their team's ability to outperform their opponents on each of the skills.

Research on Collective Efficacy in Sport

This section will focus on the research in relation to the sources of collective efficacy and will be divided into two parts. The first part will provide an overview of the four major sources of collective efficacy as described by Bandura: a) past performance accomplishments, b) vicarious experiences, c) verbal persuasion, and d) physiological information. The second part will review the literature on unique sources of collective efficacy that pertain to the sport domain: cohesion and leadership.

Major sources of collective efficacy. According to Bandura (1997), past performance accomplishments are the most important factors affecting collective efficacy. That is, teams higher in collective efficacy should outperform teams lower in collective efficacy. Research supports Bandura's notion that past performances are an important source of collective efficacy (Feltz & Lirgg, 1998; Myers, Feltz, & Short, 2004). For instance, when examining the influence of collective efficacy on team performance among male hockey players, Feltz and Lirgg (1998) found that collective efficacy was a significant predictor of team performance. Moreover, collective efficacy ratings from the players increased following team wins, while decreasing following a loss. Myers et al. (2004) examined the influence of collective efficacy on team

performance among 10 American football teams across eight weeks. They found that collective efficacy was a positive predictor of team performance within and across teams, replicating Feltz and Lirgg's findings.

Vicarious experience is another source of collective efficacy and refers to the information gained through observing someone perform or comparing one's performance to someone else's (Chase, Feltz, & Lirgg, 2003). The extent to which vicarious experiences are effective in enhancing perceptions of collective efficacy depends on the similarity between the observer and the person or group being observed. To my knowledge, there has been no study examining vicarious experience and collective efficacy in sport.

Verbal persuasion is another source of collective efficacy. According to Bandura (1997), the effectiveness of the persuasion depends on the credibility of the persuader. Research investigating the impact of pre-competition speeches found that speeches focusing on motivation and pride were more effective at increasing collective efficacy than speeches focusing on game strategy (Vargas-Tonsing & Bartholomew, 2006).

Lastly, physiological information refers to specific physiological states associated with performing certain tasks. In the sport context, teams in good physical condition tend to be more confident in their ability to outperform their opponent in key situations, whereas teams with fatigued or injured athletes can suffer a decrease in collective efficacy ratings (Damato, Grove, Eklund, & Cresswell, 2008). Damato et al. (2008) conducted a study 194 semi-professional soccer players to investigate the effects of hypothetical injuries to pivotal and non-pivotal players on perceptions of collective efficacy. A decrease in player reported collective efficacy levels following the loss of a teammate due to injury was reported, regardless of the player's skill level and role on the team. According to the authors, interdependent teams rely on each player to fill a

certain role in order for the team to achieve its goals, and if one member becomes injured, the teams' belief in their ability to persevere diminishes.

Unique sources of collective efficacy. Team cohesion is considered a source of collective efficacy. Paskevich, Brawley, Dorsch, and Widmeyer (1999) examined the reciprocal relationship between task cohesion and collective efficacy in volleyball players. With task cohesion as the criterion variable, the results indicated that athletes who rated their team high on task cohesion also rated their team high in collective efficacy, whereas athletes who rated their team low on task cohesion rated their team low in collective efficacy. When collective efficacy was the criterion variable, athletes who rated their teams higher in collective efficacy perceived higher levels of task cohesion than athletes who rated their team lower on collective efficacy. Similarly, Kozub and McDonnell (2000) found that task cohesion positively predicted collective efficacy, with the cohesion dimension of GI-T being a better predictor than ATG-T. Similarly, Heuzé, Phelan, and Thomas (2007) found that athletes' perceptions of task cohesion were positively related with their perceptions of collective efficacy. However, unlike in the other studies, a positive relationship was found between the cohesion dimension of GI-S and collective efficacy.

Researchers have also investigated the relationship between athlete leadership and collective efficacy. For example, Price and Weiss (2011) found that being viewed as an effective athlete leader was associated with teammates having greater perceptions of collective efficacy. Furthermore, athletes who rated themselves higher in athlete leadership behaviours reported greater collective efficacy. Similarly, Price and Weiss (2013) found that coach's transformational leadership behaviours were positively related to collective efficacy. Overall, coach and athlete

transformational leadership behaviours were associated with teams that were viewed as more supportive, confident, and efficient at achieving goals.

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FIGURES

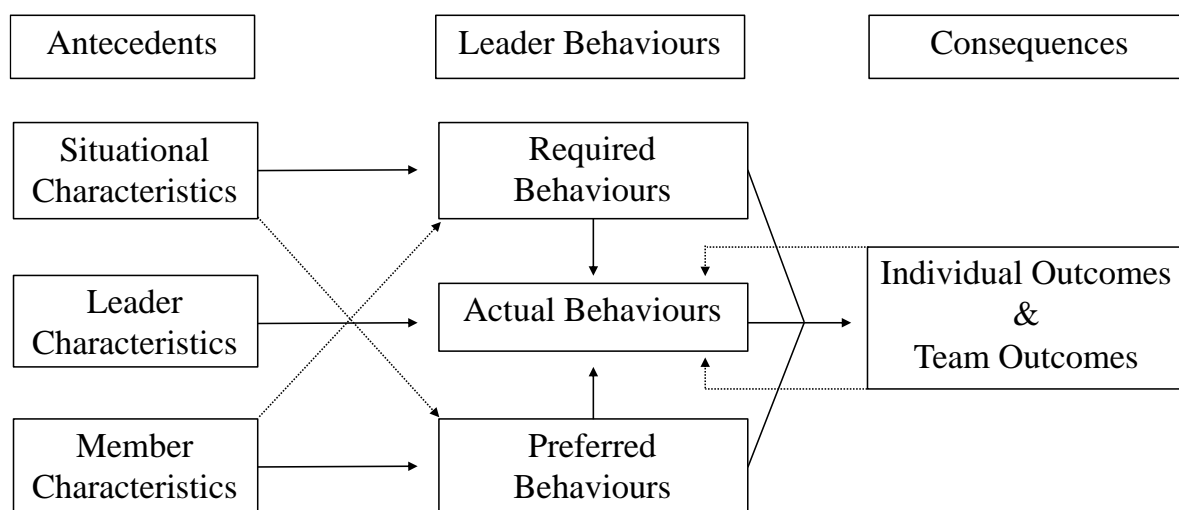


Figure 4. Adapted from “Leadership in Sports,” by P. Chelladurai, 2007. In G. Tenenbaum & R. C. Eklund (Eds), *Handbook of sport psychology* (pp. 113-135). Hoboken, NJ: John Wiley & Sons, Inc.

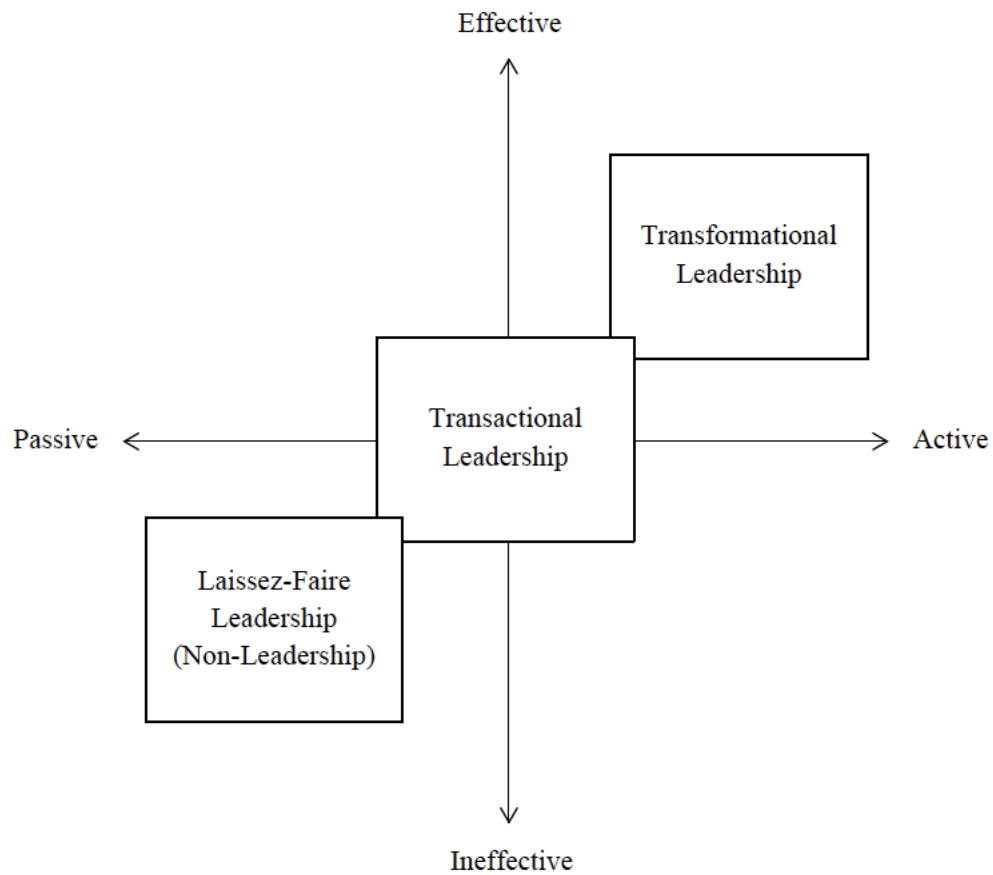


Figure 5. Adapted from “Full leadership development: Building the vital forces in organizations,” by B. J. Avolio, 1999. Thousand Oaks, CA: Sage.

APPENDICES

Appendix A

Demographics

Name: _____ Age: _____ yrs.

How many years have you been playing hockey? _____ yrs.

What position do you play on your team? (i.e., goalie, defenseman, etc.): _____

Have you ever received any type of leadership training? Yes No

If you answered *yes* to the above question, please explain the type of training you have received:

This section deals with the leadership **YOU** provide. Please read the descriptions below and select one **ONLY** if it applies to you. If it does not apply to you, please proceed to the next page.

<p>Formal Leader <input type="checkbox"/></p> <p>(An athlete that is selected by the team or coach to be in a leadership position. Such as captain or assistant-captain)</p> <p>If you have selected this option, please circle the option below that applies to your formal leadership position.</p> <p style="text-align: center;">Captain Assistant Captain</p>	<p>Informal Leader <input type="checkbox"/></p> <p>(Established through interactions with team members, not formally appointed by coach or team selection).</p>
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Appendix B

Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980)

Using the following scale, please circle a number from 1 to 5 to indicate your level of agreement with each of the statements **regarding YOURSELF**.

1 Never	2 Seldom 25% of the time	3 Occasionally 50% of the time	4 Often 75% of the time	5 Always
--------------------------	---	---	--	---------------------------

I ...

- | | | | | | |
|--|---|---|---|---|---|
| 1. See to it that every team member is working to his/her capacity. | 1 | 2 | 3 | 4 | 5 |
| 2. Explain to team members the techniques and tactics of the sport. | 1 | 2 | 3 | 4 | 5 |
| 3. Pay attention to correcting team members' mistakes. | 1 | 2 | 3 | 4 | 5 |
| 4. Make sure that team members role on the team are understood. | 1 | 2 | 3 | 4 | 5 |
| 5. Instruct team members individually in the skills of the sport. | 1 | 2 | 3 | 4 | 5 |
| 6. Figure ahead on what should be done. | 1 | 2 | 3 | 4 | 5 |
| 7. Explain to team members what they should and what they should not do. | 1 | 2 | 3 | 4 | 5 |
| 8. Expect team members to carry out their assignment to the last detail. | 1 | 2 | 3 | 4 | 5 |
| 9. Point out team members' strengths and weaknesses. | 1 | 2 | 3 | 4 | 5 |
| 10. Give specific instructions to team members as to what they should do in every situation. | 1 | 2 | 3 | 4 | 5 |
| 11. See to it that the efforts are coordinated. | 1 | 2 | 3 | 4 | 5 |
| 12. Explain how team members contributions fits into the total picture. | 1 | 2 | 3 | 4 | 5 |
| 13. Specify in detail what is expected of team members. | 1 | 2 | 3 | 4 | 5 |
| 14. Ask for the opinion of team members on strategies for specific competitions. | 1 | 2 | 3 | 4 | 5 |
| 15. Get team members approval on important matters before going ahead. | 1 | 2 | 3 | 4 | 5 |

16. Let fellow team members share in decision making.	1	2	3	4	5
17. Encourage team members to make suggestions for ways of conducting practices.	1	2	3	4	5
18. Let team members share in discussion about goals for the team as a whole (e.g., the number of wins over the following month).	1	2	3	4	5
19. Let team members try their own way even if they make mistakes.	1	2	3	4	5
20. Ask for the opinion of team members on important team matters.	1	2	3	4	5
21. Let team members work at their own speed.	1	2	3	4	5
22. Let team members decide on the plays to be used in a game.	1	2	3	4	5
23. Work relatively independent of other team members.	1	2	3	4	5
24. Not explain his/her/their action(s).	1	2	3	4	5
25. Refuse to compromise a point.	1	2	3	4	5
26. Keep to himself/herself/themselves.	1	2	3	4	5
27. Speak in a manner not to be questioned.	1	2	3	4	5
28. Help team members with their personal problems.	1	2	3	4	5
29. Help team members settle their conflicts.	1	2	3	4	5
30. Look out for the personal welfare of team members.	1	2	3	4	5
31. Do favors for team members.	1	2	3	4	5
32. Express care for other team members.	1	2	3	4	5
33. Encourage team members to confide in him/her/them.	1	2	3	4	5
34. Encourage close and informal relations with team members.	1	2	3	4	5
35. Invite team members to his/her/their home(s).	1	2	3	4	5
36. Compliment a team member for his/her performance in front of others.	1	2	3	4	5
37. Tell a team member when he/she does a particularly good job.	1	2	3	4	5

- | | | | | | |
|--|---|---|---|---|---|
| 38. See that a team member is rewarded for a good performance. | 1 | 2 | 3 | 4 | 5 |
| 39. Express appreciation when a team member performs well. | 1 | 2 | 3 | 4 | 5 |
| 40. Give credit when credit is due. | 1 | 2 | 3 | 4 | 5 |

Appendix C

Differentiated Transformational Leadership Inventory (DTLI; Callow, Smith, Hardy, Arthur, & Hardy 2009).

Using the following scale, please circle a number from 1 to 5 to indicate your level of agreement with each of the statements **regarding yourself**.

1	2	3	4	5
Not at All	Seldom 25% of the time	Occasionally 50% of the time	Often 75% of the time	All of the Time

I ...

- | | | | | | |
|---|---|---|---|---|---|
| 1. Recognize that different athletes have different needs. | 1 | 2 | 3 | 4 | 5 |
| 2. Treat each athlete as an individual. | 1 | 2 | 3 | 4 | 5 |
| 3. Consider that different athletes have different strengths and abilities from others. | 1 | 2 | 3 | 4 | 5 |
| 4. Help athletes to develop their strengths. | 1 | 2 | 3 | 4 | 5 |
| 5. Talk in a way that makes my athletes believe they can succeed. | 1 | 2 | 3 | 4 | 5 |
| 6. Talk optimistically about the future. | 1 | 2 | 3 | 4 | 5 |
| 7. Talk enthusiastically about what needs to be accomplished. | 1 | 2 | 3 | 4 | 5 |
| 8. Express confidence that goals will be achieved. | 1 | 2 | 3 | 4 | 5 |
| 9. Get athletes to re-think the way they do things. | 1 | 2 | 3 | 4 | 5 |
| 10. Challenge athletes to think about problems in new ways. | 1 | 2 | 3 | 4 | 5 |
| 11. Show athletes how to look at difficulties from a new angle. | 1 | 2 | 3 | 4 | 5 |
| 12. Try to help athletes work out how to solve problems. | 1 | 2 | 3 | 4 | 5 |
| 13. Encourage athletes to be team players. | 1 | 2 | 3 | 4 | 5 |
| 14. Get the team to work together for the same goal. | 1 | 2 | 3 | 4 | 5 |
| 15. Develop a strong team attitude and spirit among athletes. | 1 | 2 | 3 | 4 | 5 |
| 16. Insist on only the best performance. | 1 | 2 | 3 | 4 | 5 |
| 17. Will not settle for second best. | 1 | 2 | 3 | 4 | 5 |
| 18. Expect my athletes to achieve high standards. | 1 | 2 | 3 | 4 | 5 |
| 19. Expect a lot from my athletes. | 1 | 2 | 3 | 4 | 5 |

20. Always expect us to do our best.	1	2	3	4	5
21. Lead from the front whenever I can.	1	2	3	4	5
22. Am a good role model for my athletes to follow.	1	2	3	4	5
23. Lead by example.	1	2	3	4	5
24. Always set a good example.	1	2	3	4	5
25. Lead by “doing” rather than simply “telling”.	1	2	3	4	5
26. Praise athletes when they show improvement.	1	2	3	4	5
27. Personally praise my athletes when they do outstanding work.	1	2	3	4	5
28. Always recognize our achievements.	1	2	3	4	5
29. Give my athletes positive feedback when they perform well.	1	2	3	4	5
30. Give my athletes praise when they do good work.	1	2	3	4	5
31. Give my athletes special recognition when they do very good work.	1	2	3	4	5

Appendix D

Youth Sport Environment Questionnaire (YSEQ; Eys, Loughead, Bray, & Carron, 2009)

The following questions ask about your feelings toward **your team**. Please **CIRCLE** a number from 1 to 9 to show how much you agree with each statement.

	Strongly Disagree					Strongly Agree				
1. We all share the same commitment to our team's goals.	1	2	3	4	5	6	7	8	9	
2. I invite my teammates to do things with me.	1	2	3	4	5	6	7	8	9	
3. As a team, we are all on the same page.	1	2	3	4	5	6	7	8	9	
4. Some of my best friends are on this team.	1	2	3	4	5	6	7	8	9	
5. I like the way we work together as a team.	1	2	3	4	5	6	7	8	9	
6. I <u>do not</u> get along with the members of my team.	1	2	3	4	5	6	7	8	9	
7. We hang out with one another whenever possible.	1	2	3	4	5	6	7	8	9	
8. As a team, we are united.	1	2	3	4	5	6	7	8	9	
9. I contact my teammates often (call, text, social media).	1	2	3	4	5	6	7	8	9	
10. This team gives me enough opportunities to improve my own performance.	1	2	3	4	5	6	7	8	9	
11. I spend time with my teammates.	1	2	3	4	5	6	7	8	9	
12. Our team <u>does not</u> work well together.	1	2	3	4	5	6	7	8	9	
13. I am going to keep in contact with my teammates after the season ends.	1	2	3	4	5	6	7	8	9	
14. I am happy with my team's level of desire to win.	1	2	3	4	5	6	7	8	9	
15. We stick together outside of practice.	1	2	3	4	5	6	7	8	9	
16. My approach to playing is the same as my teammates.	1	2	3	4	5	6	7	8	9	
17. We contact each other often (call, text, social media).	1	2	3	4	5	6	7	8	9	
18. We like the way we work together as a team.	1	2	3	4	5	6	7	8	9	

Appendix E

Collective Efficacy Questionnaire for Sports (CEQS)

Please rate your team's confidence, in terms of the next game, that your team has the ability to

...

	Not at all Confident								Extremely Confident	
1. Outplay the opposing team.	1	2	3	4	5	6	7	8	9	10
2. Resolve conflicts.	1	2	3	4	5	6	7	8	9	10
3. Perform under pressure.	1	2	3	4	5	6	7	8	9	10
4. Be ready.	1	2	3	4	5	6	7	8	9	10
5. Show more ability than the other team.	1	2	3	4	5	6	7	8	9	10
6. Be united.	1	2	3	4	5	6	7	8	9	10
7. Persist when obstacles are present.	1	2	3	4	5	6	7	8	9	10
8. Demonstrate a strong work ethic.	1	2	3	4	5	6	7	8	9	10
9. Stay in the game when it seems like your team isn't getting any breaks.	1	2	3	4	5	6	7	8	9	10
10. Play to its capabilities.	1	2	3	4	5	6	7	8	9	10
11. Play well without your best player.	1	2	3	4	5	6	7	8	9	10
12. Mentally prepare for this competition.	1	2	3	4	5	6	7	8	9	10
13. Keep a positive attitude.	1	2	3	4	5	6	7	8	9	10
14. Play more skillfully than the opponent.	1	2	3	4	5	6	7	8	9	10
15. Perform better than the opposing team(s).	1	2	3	4	5	6	7	8	9	10
16. Show enthusiasm.	1	2	3	4	5	6	7	8	9	10
17. Overcome distractions.	1	2	3	4	5	6	7	8	9	10
18. Physically prepare for this competition.	1	2	3	4	5	6	7	8	9	10
19. Devise a successful strategy.	1	2	3	4	5	6	7	8	9	10
20. Maintain effective communication.	1	2	3	4	5	6	7	8	9	10

Appendix F

LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

You are asked to participate in a research study conducted by Mr. Matthieu Boisvert and Dr. Todd Loughhead from the Faculty of Human Kinetics at the University of Windsor. This study has received University of Windsor REB clearance. Your participation is completely voluntary and will have no bearing on your on-going participation in your current sport.

If you have any questions or concerns about the research, please feel to contact Mr. Matthieu Boisvert (boisvertm@uwindsor.ca; 519-253-3000 ext. 4058) or Dr. Todd Loughhead (loughhead@uwindsor.ca; 519-253-3000 ext. 2450).

PURPOSE OF THE STUDY

The purpose of this research is to enhance the team's environment.

PROCEDURES

If you volunteer to participate in this study, you will be asked to take part in an eight-session team functioning program using a workshop format. Six times over the season you will meet for one hour with Matthieu Boisvert and other athletes from your team to participate in discussions and activities related to your team's functioning. Additionally, you will be required to meet once before the beginning of the program and once following the completion of the program to fill out questionnaires pertaining to your team, which will take approximately 30 minutes.

POTENTIAL RISKS AND DISCOMFORTS

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

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

The information gained from this study will advance research in the field of sport psychology. Specifically, the results will aid in the improvement of learning how to develop better functioning teams. In addition, athletes involved in the program will gain valuable insight into the importance of leadership while having the opportunity to develop their own personal leadership skills and behaviours.

COMPENSATION FOR PARTICIPATION

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

CONFIDENTIALITY

Responses to the questionnaires will remain confidential. All data will be kept in a password protected file which will only be accessible by the primary investigator. Potentially the data may also be utilized in subsequent studies conducted by the researchers. All participant data will be password-protected to ensure that only the listed investigators are able to access the data. Also, this data will be de-identified. Data will be kept indefinitely.

PARTICIPATION AND WITHDRAWAL

Participation in this study is completely voluntary. If you volunteer to participate in this study, you may withdraw at any time while completing the program, without penalties or consequences. You may refuse to answer any questions in the questionnaires and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS

The results will be posted at the University of Windsor's Research Ethics Board website by July 1, 2018 (<http://www.uwindsor.ca/reb>). If you have any additional concerns or questions, you can contact the primary investigators at the numbers listed above.

SUBSEQUENT USE OF DATA

These data may be used in subsequent studies in publications and in presentations.

RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

Signature of Investigator

Date

Appendix G

CONSENT TO PARTICIPATE IN RESEARCH

You are asked to participate in a research study conducted by Mr. Matthieu Boisvert and Dr. Todd Loughhead from the Faculty of Human Kinetics at the University of Windsor. This study has received University of Windsor REB clearance. Your participation is completely voluntary and will have no bearing on your on-going participation in your current sport.

If you have any questions or concerns about the research, please feel to contact Mr. Matthieu Boisvert (boisvertm@uwindsor.ca; 519-253-3000 ext. 4058) or Dr. Todd Loughhead (loughhead@uwindsor.ca; 519-253-3000 ext. 2450).

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SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE

I understand the information provided for the study as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

Name of Participant

Signature of Participant

Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Signature of Investigator

VITA AUCTORIS

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