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THE INFLUENCE OF COACHING EFFICACY ON TEAM COHESION AND PERFORMANCE

By
Ashleigh Baker

A Thesis
Submitted to the Faculty of Graduate Studies
Through the Faculty of Human Kinetics
in Partial Fulfillment of the Requirements for the
Degree of Master of Human Kinetics at the
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Abstract

The purpose of the current study was to determine whether cohesion mediated the relationship between coaching efficacy and performance in sport. Participants included 167 athletes on competitive soccer, baseball, and synchronized skating teams. Each athlete completed the Group Environment Questionnaire (Carron, Widmeyer, & Brawley, 1985) to assess cohesion, the Coaching Efficacy Scale (Feltz, Chase, Moritz, & Sullivan, 1999) to assess their perceptions of their coaches' efficacy, and the Perceived Exertion Scale (Borg, 1971) to assess their performance. Baron and Kenny's (1986) guidelines for testing mediation was utilized. Overall, a significant relationship was found between cohesion and coaching efficacy, whereby all four dimensions of cohesion (ATG-T, ATG-S, GI-T, and GI-S) were influenced by two dimensions of coaching efficacy; Motivation efficacy and Skills and strategy efficacy. However, no relationship was found between coaching efficacy and performance, indicating that cohesion did not mediate the relationship between coaching efficacy and performance.

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Finally, the friends I have made while at school are some of the best friends I have. We all went through the same process together, and were able to keep each other focused, motivated, and distracted, when needed. Through thick and thin, you girls have provided me with unconditional support and entertainment. Diana and Trista, I would not have been able to do this without you girls alongside me. Your loyalty, support, love, and stern lectures have made these past two years possible. You kept me grounded when I needed it, and have stood by me through numerous tough times. T3, we all made it! Danielle and Paula, I will never forget all the memories we have together. The support (or distraction) you provided was much needed and I look forward to all the memories to be made in the future. Friends are the family we choose for ourselves, and I'm proud to call you my family. I love you girls.

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Research Article

Introduction

The dominant leader on athletic teams is the coach (Feltz, Chase, Moritz, & Sullivan, 1999). Coaches hold a central role concerning the functioning of the team such as making decisions, running practices, and influencing the behaviors of their athletes. Previous research has found coaching behaviors to be positively associated with higher levels of cohesion (e.g., Gardner, Shields, Bredemeier, & Bostrom, 1996; Westre & Weiss, 1991). Not surprisingly, athletes and coaches have often cited team cohesion as a fundamental reason for their team's success. In fact, Carron (1982) suggested that cohesion is central to effective team functioning. Given this importance, cohesion has historically been identified as the most important small-group variable (Golembiewski, 1962; Lott & Lott, 1965). One of the reasons why cohesion is viewed as a critical construct may be due to the fact that it serves as a mediating variable in group development, maintenance, and productivity (Bollen & Hoyle, 1990). The identification of mediational variables is crucial since they indicate which constructs should be targeted for intervention (Baranowski, Anderson, & Carmack, 1998).

One model that views cohesion as a mediator is Carron's (1982) conceptual model for the study of cohesion (see Figure 1). This is a linear model that consists of antecedents, throughputs, and consequences. The antecedents of cohesion can be classified into four categories: environmental, personal, team, and leadership. Environmental factors represent the organizational system of the group, and are viewed as being the most general factors contributing to the development of cohesion. Examples of environmental factors consist of contractual responsibility, group size, and

organizational orientation of the team. Personal factors encompass a wide variety of factors, but can consist of the individual's motivation (e.g., task, affiliation), individual satisfaction, gender, race, and socioeconomic status. In terms of team factors, Carron highlighted that team orientation, team ability, team stability, desire for team success, and team norms are variables that can influence cohesion. The final antecedent of the model is leadership and has been defined as, "a process whereby an individual influences a group of individuals to achieve a common goal" (Northouse, 2004, p. 3). This body of research has shown that leadership positively influenced perceptions of team cohesion. For example, Westre and Weiss (1991) found that coaching behaviors (i.e., training and instruction, social support, positive feedback) to be associated with higher levels of task cohesion. Similar results were found by Gardner et al. (1996), who found that teams with coaches perceived by the athletes as high in training and instruction, democratic behavior, social support, and positive feedback, and low in autocratic behavior showed significantly higher levels of team cohesion.

Although all four antecedents contained in the model appear to be important, the present study will focus on the leadership factor, due to the fact that coaches occupy a central role within the team environment. In addition, the majority of research to date examining the leadership-cohesion relationship has focused on the behaviors of coaches, however, another line of leadership research has recently emerged, namely coaching efficacy. Coaching efficacy refers to the extent to which a coach believes he/she has the capacity to affect the learning and performance of his/her athletes, and has been conceptualized to be comprised of four dimensions: Ggame strategy, Motivation, Technique, and Character building (Feltz et al., 1999). Game strategy efficacy refers to

the coaches' belief in their ability to coach during competition and lead their team to victory. Motivation efficacy concerns the coaches' belief in their ability to impact their athletes' mental states and psychological skills. Technique efficacy is the belief coaches have in their instructional and diagnostic skills relevant to their sport. Finally, character building efficacy refers to the coaches' belief in their ability to positively influence their athletes' personal attitude and development.

To date, coaching efficacy has been examined in relation to a number of factors such as performance (Myers, Vargas-Tonsing, & Feltz, 2005), coach education (Campbell & Sullivan, 2005; Malete & Feltz, 2000), coaching behaviors (Sullivan & Kent, 2003), and individual and collective efficacy (Vargas-Tonsing, Warners, & Feltz, 2003). Myers et al. found that coaching efficacy predicted performance, operationalized as the team's winning percentage, for male teams but not for female teams. In terms of coach education programs, two studies (i.e., Campbell & Sullivan; Malete & Feltz) found coaches who completed a coach education program (e.g., NCCP) had higher coaching efficacy levels than coaches in a control condition receiving no coaching education. Coaching efficacy has also been found to predict coaching behaviors (Sullivan & Kent, 2003). More specifically, the coaching efficacy dimensions of Motivation efficacy and Technique efficacy significantly predicted the leadership behaviors of positive feedback, and training and instruction. Finally, Vargas-Tonsing et al. (2003) found that coaching efficacy significantly predicted collective efficacy, but not individual player efficacy. Specifically, two dimensions of coaching efficacy were found to have a significant impact, Motivation efficacy, and Character building efficacy.

The throughput in Carron's (1982) model is cohesion. Carron, Brawley, and Widmeyer (1998) defined cohesion as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (p. 213). Cohesion is comprised of four dimensions, individual attractions to the group-task (ATG-T), individual attractions to the group-social (ATG-S), group integration-task (GI-T), and group integration-social (GI-S) (Carron et al., 1998). The cohesion dimension of ATG-T is defined as the individual's attraction to, as well as, their personal involvement in the group's goals, productivity, and objectives. The cohesion dimension of ATG-S is viewed as the individual's attraction to the group as a social unit, as well as their feelings about his or her personal acceptance within the group. The cohesion dimension of GI-T is viewed as the individual's feelings about the similarity, closeness, and bonding present within the group around their task. Finally, GI-S is viewed as the individual's feelings about the similarity, closeness, and bonding present within the group as a social unit.

Finally, the consequences of cohesion represent the factors that are influenced by cohesion. To date, research has examined the influence of cohesion on a variety of outcomes, such as perceived belonging (Allen, 2006), intention to return to the team the following season (Spink, 1995), work output (Prapavessis & Carron, 1997), and performance (Carron, Bray, & Eys, 2002). While all of the consequences of cohesion are important, performance has been examined the most often. In fact, Carron, Colman, Wheeler, and Stevens (2002) conducted a meta-analysis on the cohesion-performance relationship in sport using a total of 46 empirical-based studies. Overall, the results showed a strong, positive relationship between cohesion and performance (Cohen's d =

.66). More specifically, the results indicated that both task (Cohen's d = .58) and social cohesion (Cohen's d = 70) were found to have an impact on performance. Furthermore, a variety of moderating variables were examined, such as sport type, measure of performance, and level of competition. The results showed that sport type (e.g. coactive vs. interdependent) does not moderate the cohesion-performance relationship. As for the measure of performance, Carron, Colman, et al. examined whether self-reports of performance or actual behavioral indices influenced the cohesion-performance relationship. The results revealed that both self-report and actual behavioral indices influenced the cohesion-performance relationship equally. Similarly, when level of competition was examined (professional, club, varsity, high school, and intramural), the results showed that level of competition was not a moderator in the cohesion-performance relationship (Carron, Colman, et al.).

Although research has shown that cohesion is related to both leadership and performance, this body of knowledge does have its shortcomings. First, the Carron (1982) model for the study of cohesion is mediational in nature, however, research testing this assumption has been sparse, especially in sport. The majority of research examining cohesion as a mediator has been in the exercise domain. For instance, Loughead and colleagues (e.g., Loughead & Carron, 2004; Loughead, Colman, & Carron, 2001; Loughead, Patterson, & Carron, 2008) conducted a series of studies examining whether cohesion served as a mediating variable between exercise leader behaviors and several exercise-related outcomes. Overall, the results from these studies have shown that all task dimensions of cohesion served as a mediator. Specifically, Loughead et al. (2001) found that ATG-T mediated the relationship between exercise leadership (operationalized as

motivation and enthusiasm) and adherence (operationalized as attendance). Also, GI-T mediated the relationship between an exercise leader's enthusiasm and attendance. Loughead and Carron found that ATG-T and GI-T mediated the relationship between exercise leader behavior and exerciser satisfaction. Finally, Loughead et al. (2008) found that ATG-T mediated the relationship between exercise leader behavior and an exerciser's mood state. To date, only one study has examined whether cohesion served as a mediator in sport. Specifically, Spink (1998) examined whether the cohesion dimension of ATG-S mediated the relationship between the leadership behavior of training and instruction and the outcome of intention to return to their sport the following season. The results indicated that ATG-S mediated the relationship between training and instruction and intention to return to sport.

Second, while research has shown a positive relationship between coaching behaviors and cohesion, no research has examined the coaching efficacy-cohesion relationship. This is somewhat surprising given that a positive relationship has been found between efficacy, specifically collective efficacy, and cohesion (Kozub & McDonnell, 1997; Paskevich, 1995; Spink, 1990). For instance, Spink (1990) found that two dimensions of cohesion (ATG-T and GI-S) differentiated between low and high collective efficacy in various sport teams, whereby high collective efficacy teams had greater perceptions of cohesion. Similarly, Kozub and McDonnell conducted a study with rugby players that found a significant relationship between all four dimensions of cohesion and collective efficacy.

Third, the majority of research regarding coaching efficacy has examined the construct from the coach's perspective. One reason for this focus was related to the

developmental nature of the construct. In particular, a significant portion of the research has focused on developing a valid and reliable measurement tool (i.e., Coaching Efficacy Scale; Feltz et al., 1999) and as such coaches' input was deemed essential. Consequently, research has focused on establishing content and factorial validity, and acceptable internal consistency values for the Coaching Efficacy Scale. However, it is equally important to obtain the athletes' perspective concerning coaching efficacy in order to have a more complete understanding of this construct. If athletes perceive their coaches to be efficacious, then it is likely that the team environment will be impacted (e.g., perceptions of team cohesion). In fact, Vargas-Tonsing, Myers, and Feltz (2004) found that coaches' perceptions were generally incongruent to that of their athletes' perceptions in regards to the frequency and effectiveness of efficacy enhancing techniques. Specifically, coaches' and athletes' perceptions were in agreement for two of the 13 efficacy enhancing techniques. The two techniques that coaches and athletes agreed upon were employing hard physical conditioning and the coaches acting confident themselves. Similarly, Short and Short (2004) compared coaches and athletes scores on the Coaching Efficacy Scale, the athletes rated their coaches' efficacy higher than the coaches rated themselves. Due to these differences in perceptions, it is vital to expand upon the limited findings.

Fourth, although Spink (1998) conducted the only study examining cohesion as a mediator in sport, the author examined only one dimension of cohesion, ATG-S, neglecting the other three dimensions without providing a rationale for this decision. This is problematic due to the fact that cohesion is comprised of four conceptually distinct dimensions (Carron et al., 1998). Given that research (e.g., ATG-S: Spink, 1998; GI-S:

Spink, 1995; ATG-T: Loughead et al., 2008; GI-T: Lowther & Lane, 2003) has shown that these four dimensions have different antecedents and/or consequences, it is important to test all four dimensions of cohesion concurrently.

Therefore, the purpose of the current study was to determine whether cohesion mediated the relationship between coaching efficacy and performance in sport. As was noted earlier, research has shown that coaching efficacy was related to performance (Myers et al., 2005) and that cohesion was related to both performance (Carron et al., 2002) and coaching behaviors (Westre & Weiss, 1991). Using these bodies of evidence as a basis, it was hypothesized that coaching efficacy would contribute to the development of team cohesion and team cohesion, in turn, would be related to performance. In short, a mediation relationship is expected between coaching efficacy, cohesion, and performance. However, given the exploratory nature of the proposed study, no specific a priori predictions were made for each specific dimension of cohesion, each specific dimension of coaching efficacy, and performance.

Method

Participants

The participants consisted of 167 athletes (98 male, 69 female), from 21 teams, and were selected based on a convenience sample. The teams represented competitive soccer teams (n = 60), baseball teams (n = 73), and synchronized ice skating teams (n = 34) from two cities in Ontario: Windsor and Ottawa. The participants ranged in age from 17 to 55 years, and had a mean age of 24.3 years, and were on their current team for an average of 3.5 years. Given that one aspect of the study concerns coaching efficacy, only teams having a coach were included in this study. Of the eight soccer teams, there were

seven male coaches, and one female coach. The 10 baseball teams were coached by males, and the three synchronized skating teams had female coaches.

Measures

Cohesion. Cohesion was measured using the Group Environment Questionnaire (GEQ; Carron, Widmeyer, & Brawley, 1985, see Appendix A). The GEQ is an 18-item self-report inventory that measures the four dimensions of cohesion. The ATG-T scale consists of four items, an example being: "I like the amount of playing time I get" The ATG-S scale consists of five items, an example being: "For me, this team is one of the most important social groups to which I belong" The GI-T scale consists of five items, an example being: "Our team is united in trying to reach its goals for performance" Finally, the GI-S scale consists of four items, an example being: "Members of our team would rather go out on their own than get together as a team" The GEQ is measured on a 9-point Likert scale, anchored by 1 (*strongly disagree*) and 9 (*strongly agree*). Research using the GEQ has shown acceptable internal consistency values (Patterson, Carron, & Loughead, 2005), as well as demonstrated face (Carron et al., 1985), concurrent (Paskevich et al., 2001), predictive (Paskevich et al.), and factorial validity (Carron et al., 1985; Paskevich et al.).

A few studies (e.g., Gardner et al., 1996; Westre & Weiss, 1991) have found low internal consistency values for some of the dimensions contained in the GEQ. One reason that may explain a lower than ideal internal consistency value may be attributed to the wording of the items on the questionnaire. In particular, 12 of the 18 items contained in the GEQ are negatively worded. Recently, Eys, Carron, Bray, and Brawley (2007) demonstrated that using a modified version of the GEQ, in which all the items were

positively worded, produced high internal consistency values for three of the four dimensions (i.e., ATG-S, GI-T, GI-S). For this reason, the modified version of the GEQ, where all items are positively worded, was used in the current study.

Coaching efficacy. Coaching efficacy was measured using a modified version of the Coaching Efficacy Scale (CES; Feltz et al., 1999). That is, the CES has typically been completed by coaches, however for this study, the athletes completed an athlete version. The only modification to the inventory concerns the stem that precedes the items. The original stem for the coaches reads: "How confident are you in your ability to..." Whereas in the modified version the stem addressed the athletes and reads: "How strongly do you believe in your coaches' ability to..."

The modified CES consists of 24 items that assessed four dimensions of coaching efficacy (see Appendix B). Motivation efficacy was assessed by seven items, an example being: "Build the self-esteem of the athletes?" Game strategy efficacy was assessed by seven items with an example being: "Adjust the game/meet strategy to fit the team's talent?" Technique efficacy was represented by six items, an example being: "Teach the skills of the sport?" The final dimension, character building efficacy was represented by four items, an example of which is: "Instill an attitude of respect for others?" The CES measures efficacy on a 10-point Likert scale with the anchors of 0 (*not at all confident*) to 9 (*extremely confident*). Research using the CES has found acceptable internal consistency values (Campbell & Sullivan, 2005; Feltz et al., 1999; Kent & Sullivan, 2003), construct validity (Kent & Sullivan), factorial validity, and convergent validity (Feltz et al.).

Performance. Performance was measured using the Perceived Exertion Scale (Borg, 1971, see Appendix C). Athletes were asked to circle the number that best represents how hard they worked on a 15-point Borg scale (6 = *very very light*; 20 = *very very hard*). This scale has previously been used in studies examining cohesion and performance (e.g. Loughead et al., 2001; Patterson et al., 2005) and has been found to be a reliable and valid measurement tool (Skinner, Hustler, Bergsteinova, & Buskirk, 1973).

Athletes completed four versions of the Perceived Exertion Scale to assess their performance in both practice and competition settings, and how hard they worked over the last four weeks and during their last training and competition session. To this end, the four versions are referred to as, Perceived Exertion Competition 1 (last 4 weeks), Perceived Exertion Competition 2 (last competition), Perceived Exertion Practice 1 (last 4 weeks), and Perceived Exertion Practice 2 (last practice).

Demographics. Demographic information was collected for each of the participants including age, gender, tenure on current team, tenure with current coach, and experience competing in current sport (see Appendix D).

Procedures

Upon receiving ethical clearance, coaches from the Windsor, Ontario and Ottawa Ontario regions were contacted through email to request permission to administer the questionnaire to the athletes on their teams. Once approval from the coaches was obtained, the athletes were given a description of the study and informed consent was obtained prior to the completion of the questionnaire. After obtaining informed consent, the athletes completed the Group Environment Questionnaire, Coaching Efficacy Scale, and the Perceived Exertion Scale following a practice session. The questionnaires were

counter-balanced to ensure that each of the three had equal opportunity at being completed.

Data Analysis

Prior to conducting analysis, the data were cleaned and screened for missing data, by running frequencies. In addition, the data were examined for outliers using a scatterplot of standardized residuals against fitted values. Furthermore, two of the most important assumptions for multilevel modeling were conducted (Luke, 2004). The first assumption was that the level-1 (within-group) errors were independent and normally distributed. The second assumption was that the random effects were normally distributed with a mean of zero, and were independent across groups. The assumption of normality and linearity was satisfied by inspecting the residuals, for each of the independent and dependent variables.

Prior to undertaking tests of mediation, an issue that arises in research studying groups pertains to the fact that athletes in the current study were nested within teams, thus making the data inherently clustered. Therefore, traditional analyses (e.g., regression in SPSS) are not designed to accommodate clustered data. This violates the independent observations assumption of ordinary least squares estimation which inflates the probability of a Type I error. In order to overcome this problem, multilevel modeling was developed to appropriately analyze data that are clustered. The basic requirement for using multilevel analyses in tests of mediation include (a) a meditional model whereby the outcome variable (i.e., performance operationalized as perceived exertion) is measured at the individual level, and (b) that the data be clustered with a positive intraclass correlation coefficient (ICC) (Krull & MacKinnon, 2001). In terms of the

former, perceived exertion refers to how hard an individual athlete worked, thus satisfying the first requirement. As for the latter, the results of the ICC for coaching efficacy (i.e., Motivation efficacy, Game strategy efficacy, Technique efficacy, and Character building efficacy) and cohesion (i.e., ATG-T, ATG-S, GI-T, and GI-S) had positive ICCs (Motivation efficacy, $r = .14, p < .05$, Game strategy efficacy, $r = .11, p < .05$, Technique efficacy, $r = .25, p < .05$, Character building efficacy, $r = .28, p < .05$, ATG-T, $r = .06, p < .05$; ATG-S, $r = .04, p < .05$, GI-T, $r = .20, p < .05$, and GI-S, $r = .17, p < .05$). On the basis of these results, the second requirement was satisfied. Therefore, Baron and Kenny's (1986) procedure for testing mediational relationships in a multilevel context was applied as suggested by Krull and MacKinnon using HLM 6 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004).

Baron and Kenny (1986) suggested that a variable will function as a mediator, cohesion in the current study, when it meets the following conditions:

Condition 1: The predictor variable (i.e., coaching efficacy) is significantly related to the mediator variable (i.e., cohesion).

Condition 2: The predictor variable (i.e., coaching efficacy) is significantly related to the output variable (i.e., performance).

Condition 3: The mediator variable (i.e., cohesion) is significantly related to the outcome variable (i.e., performance) when regressed with the predictor variable (i.e., coaching efficacy).

Condition 4: If the preceding three conditions are present, the effect of the predictor variable (i.e., coaching efficacy) on the outcome variable (i.e., performance) must be less pronounced when regressed with the mediator variable (i.e., cohesion) than

when regressed without it. Theoretically, a reduction demonstrates that mediation is present.

There is one final issue concerning the analysis of multilevel mediational models that should be mentioned. That is, many of the variables in the present study (e.g., cohesion) may be conceptualized at more than one level (i.e., individual vs. team level). That is, any variable measured at the individual level can be aggregated to the team level by simply taking the mean for each team. However, multilevel modeling provides no guidance in determining the level at which a variable should reside. As Gavin and Hofmann (2002) noted the decision should consider the conceptual nature of the research question. Given that the present study was concerned with how individual athletes perceive their coaches and their team environment, it was decided that all the variables (i.e., coaching efficacy, cohesion, and performance) be conceptualized and subsequently analyzed at the individual level.

Results

Descriptive statistics

A summary of the bivariate correlations among all variables can be found in Table 1. The results showed that the four dimensions of cohesion (i.e., ATG-T, GI-T, ATG-S, & GI-S) were significantly related to one another with correlations ranging from .43 to .60. Similarly it should be noted that the four dimensions of coaching efficacy were also related to each other. It should be noted the coaching efficacy subscales of Game strategy efficacy and Technique efficacy demonstrated evidence of multicollinearity with a correlation of .91. To rectify this problem Tabachnick and Fidell (2001) recommended that the offending subscales be combined to create one new subscale, which was entitled

Skills and strategy efficacy Consequently, the correlations between the dimensions of coaching efficacy (i.e., Motivation efficacy, Character building efficacy, & Skills and strategy efficacy) ranged from .16 to .77 Lastly, the four measures of perceived exertion were all significantly related to each other with correlations ranging from .33 to .81.

Internal consistencies were calculated for each of the four cohesion subscales and the three coaching efficacy subscales. Nunnally and Bernstein (1994) recommended that internal consistency values be greater than .70. The cohesion dimensions of ATG-S, GI-T, and GI-S showed acceptable internal consistency values of .78, .78, and .84 respectively. However, the cohesion dimension of ATG-T had an internal consistency value of .69. In order to improve the internal consistency, one item was deleted, which increased the internal consistency to .72. The three coaching efficacy subscales demonstrated acceptable internal consistency values (Motivation efficacy = .91, Character building efficacy = .78, and Skills and strategy efficacy = .96).

Means and standard deviations were calculated for the four dimensions of cohesion, the three dimensions of coaching efficacy, and perceived exertion (see Table 2). In terms of cohesion, ATG-T was rated the highest (M = 7.70 on the 9-point scale, SD = 1.22), followed by ATG-S (M = 7.51, SD = 1.31), GI-T (M = 7.39, SD = 1.09), and GI-S (M = 6.77, SD = 1.43). Insofar as coaching efficacy, Character building efficacy was rated the highest (M = 7.69 on the 10-point scale, SD = 1.54), followed by Motivation efficacy (M = 7.50, SD = 1.17), and Skills and strategy efficacy (M = 7.28, SD = 1.50). As for perceived exertion, the results showed that Perceived Exertion Competition 2 ranked the highest (M = 16.69, SD = 2.60), followed by Perceived Exertion Competition

1 (M = 15.85, SD = 2.81), Perceived Exertion Practice 2 (M = 14.55, SD = 3.26), and Perceived Exertion Practice 1 (M = 14.48, SD = 3.01), using the 15-point scale.

Testing for mediation

The main research question focused on whether cohesion served to mediate the relationship between coaching efficacy and performance. In order to test this relationship, Baron and Kenny's (1986) guidelines for mediation were followed, whereby four separate conditions need to be met. Insofar as the first condition is concerned, the results showed that there was a significant relationship between cohesion and coaching efficacy. In particular, the cohesion dimension of ATG-T was significantly related to the coaching efficacy dimensions of Motivation efficacy, and Skills and strategy efficacy (ß = .34, SE = .13, $p < .05$; and ß = .31, SE = .09, $p < .05$, respectively). As well, the cohesion dimension of ATG-S was related to the coaching efficacy dimensions of Motivation efficacy and Skills and strategy efficacy (ß = .30, SE = .15, $p < .05$; and ß = .25, SE = .10, $p < .05$, respectively). Finally, the cohesion dimensions of GI-T and GI-S were related to Motivation efficacy (ß =.47, SE = .11, $p < .05$; and ß = .42, SE = .17, $p < .05$, respectively).

Insofar as condition two is concerned, the results showed no significant relationships between coaching efficacy and performance. In particular, the three dimensions of coaching efficacy, Motivation efficacy, Character building efficacy, and Skills and strategy efficacy, were not significantly related to the performance measures of Perceived Exertion Last Practice 1 (ß = -.08, SE = .39, $p > .05$; ß = .03, SE = .31, $p > .05$; and ß = .17, SE = .26, $p > .05$, respectively). In terms of the Perceived Exertion Practice 2, the same three coaching efficacy variables demonstrated the following values, ß = .08,

$SE = .42, p > .05$; ß = .02, $SE = .33, p > .05$; and ß = .06, $SE = .28, p > .05$, respectively When regressed with Perceived Exertion Competition 1, the three coaching efficacy subscales had values of ß = .14, $SE = .37, p > .05$; ß = -.06, $SE = .28, p > .05$; and ß = .04, $SE = .25, p > .05$, respectively. Finally, when coaching efficacy was regressed with Perceived Exertion Competition 2, the values were as follows, ß = -.55, $SE = .33, p > .05$, ß = .51, $SE = .26, p > .05$; and ß = .30, $SE = .22, p > .05$, respectively. Given that the second condition was not satisfied, conditions three and four were not tested.

Discussion

The purpose of the current study was to determine whether cohesion mediated the relationship between coaching efficacy and performance in sport. It was predicted that coaching efficacy would contribute to the development of cohesion and, in turn, cohesion would be related to performance. The results showed that cohesion did not mediate the relationship between coaching efficacy and performance. However, the results revealed that there was a significant relationship between coaching efficacy and cohesion. Beyond these findings, a number of aspects associated with the results should be highlighted.

The first point pertains to the relationship found between cohesion and coaching efficacy. While these two constructs have never been examined concurrently, a relationship was hypothesized due to the fact that other measures of efficacy (e.g., collective efficacy) have been found to be associated to cohesion (Kozub & McDonnell, 1997; Paskevich, 1995; Spink, 1990). Indeed a strong, positive relationship was found between these two constructs. In fact, all four dimensions of cohesion were related to the coaching efficacy dimension of Motivation efficacy. This result showed that the more efficacious an athlete perceived their coach to be in terms of motivating them, the more

likely the athletes were to feel a high level of attraction and involvement in the team's goals and objectives, as well as a closeness and bonding with their teammates around their tasks and social aspects. These results are similar to ones found by Ball and Carron (1976) when they examined cohesion in relation to participation motivation. Specifically, they found that a large percentage of variability of team success was accounted for by cohesion and self-motivation. Furthermore, the findings of the present study are similar to previous research in exercise. In particular, Loughead et al. (2001) examined the found that the motivation provided by the fitness instructor was related to the cohesion dimension of ATG-T

The results of the current study also showed a relationship between the cohesion dimensions of ATG-T and ATG-S, and the coaching efficacy dimension of Skills and strategy efficacy. From the athletes' perspective, it is logical for their sense of involvement and acceptance of team goals and objectives to increase when they feel their coach is able to supply them with the appropriate skill and strategy information in order to attain such goals. This finding extends previous research findings in the field of leadership and cohesion. Specifically, Shields, Gardner, Bredemeier, and Bostrom (1997) found that task cohesion was related to the leadership dimension of training and instruction, which is similar in nature to the Skills and strategy dimension used in the present study. Similarly Jowett and Chaundy (2004) found task and social dimensions of cohesion to be related to leadership behavior of training and instruction.

Based on the findings from the current study, it can be suggested that in order to build team cohesion, it is important for the athletes to perceive their coaches to be efficacious in a wide variety of areas related to coaching. Previous research has shown

that attending coaching clinics leads to an increase in coaching efficacy among coaches (Campbell & Sullivan, 2005; Malete & Feltz, 2000). Therefore, if athletes were made aware of the clinics and educational programs their coaches attend, as well as their previous experiences and credentials, higher efficacy levels may develop among the athletes, which will in turn foster greater perceptions of team cohesion.

In terms of the second condition in testing for mediation, the results indicated no significant relationship between coaching efficacy and performance. While these results were unexpected, there are a few possible explanations. The athletes in the current study had approximately 15 years experience in their sport, but only three years on average with their current coach. It is possible that over the athletes' playing careers, they have been coached by a number of different coaches, lessening their dependence on a coach in order to perform. At this point in their athletic careers, they may be intrinsically motivated to perform, and do not require high perceptions of coaching efficacy in order to perform. Meyers (2003) found elite level athletes demonstrated higher task-orientation over ego-orientation. Higher task-orientation has been positively linked to hard work, success, and trying one's best for self-improvement. The athletes in the current sample could be classified as elite, as many of them have or were competing at a high level (e.g., national, provincial) at the time of the study. The task-orientation could be a reason why the athletes did not require high efficacy beliefs in their coaches in order to perform;, they are doing it for themselves. A second possible explanation concerns the type of sports in the current study. For example, the amount of time a soccer player exerts themselves differs greatly from a baseball player who waits for their turn at bat, or may not be involved in a play during the inning. Synchronized skating is a very different sport in that

the athletes put forth a lot of effort during countless practice hours a week; however, their competition time is minimal compared to soccer or baseball. The differences between these sports may have had an impact on how the athletes responded to the perceived exertion scale. A third possible explanation concerns the operationalization of performance. Previous research examining the coaching efficacy-performance relationship has shown that performance operationalized as winning percentage was positively related to a coach's own perceived efficacy (Feltz et al., 1999). Winning percentage can be viewed as a purely objective measure of performance. Whereas, in the present study, performance was operationalized as perceived exertion—a self-report measure. While a number of studies have provided empirical support for the use of self-report exertion measures (e.g., Loughead et al., 2001), others have found discrepancies between the self-report measure and actual performance exhibited by the athletes (e.g., Kuijer, Gerrits, & Reneman, 2004).

While the current study makes a contribution to the group dynamics literature by establishing an empirical link between cohesion and coaching efficacy, there are a few limitations which should be highlighted. It is important to note the multicollinarity found between the coaching efficacy subscales of Technique efficacy and Game strategy efficacy, which resulted in the creation of a composite subscale. The results demonstrated that the athletes scored these two subscales in a similar manner to the point that they appear to be measuring the same construct. This begs the question as to whether this evidence of multicollinarity is a function of the sample utilized in the present study or a problem with the questionnaire itself. The present study was the first to have athletes complete the CES (Feltz et al., 1999) as opposed to a coaching sample. One obvious

conclusion would be to suggest that since the CES was originally developed using a sample of coaches, athletes had difficulty discriminating between Technique efficacy and Game strategy efficacy. However, an examination of the factor loadings from when the inventory was originally developed (i.e., Feltz et al.) shows that the items from these two dimensions may be related to one another. In fact, Myers et al. (2005) have suggested limited discriminant validity among the dimensions contained in the CES, particularly between Game strategy efficacy and Technique efficacy. In addition, these authors suggested that the definitions of the factors be refined and then modify some of the items to lessen the overlap among the subscales. Therefore, since its development the CES has suffered from some overlap between its subscales. The results of the present study, which used a sample of athletes, provide additional evidence that a revised version of the inventory be considered.

Another limitation to the present study is the sample itself. Only athletes participating in competitive level sports were sampled. This limits the ability to generalize the results to athletes in other sports, and of different competitive levels (e.g., recreational or professional).

A third limitation surrounds the issue of response bias. Due to the fact that the athletes were asked to report on their coach, they may have felt pressure to provide the "correct" answer, or to support their coach out of loyalty. They may have answered the questionnaires as they felt the researcher wanted them to, as opposed to their true response. Future research should take this into consideration, and either consider qualitative research to discover an athlete's true perception of their coach's efficacy, or

include a social desirability scale in the questionnaire package, for example, the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960).

The last limitation to the current study is the research design. This study is correlational in nature, which assesses whether or not a relationship exists between variables. However, it does not provide information as to the direction of the relationship. Hence, it is impossible to draw any conclusions as to the direction of the relationship between cohesion and coaching efficacy. Future researchers may want to consider conducting a cross lagged study, whereby the participating teams complete the questionnaires at two different time points in the season. Between the two measurements, researchers can establish which direction the relationship between variables is occurring.

Research regarding coaching efficacy, cohesion, and performance is in its infancy, as this study is the first to examine all three constructs concurrently. However, future research should carefully consider the aforementioned limitations to the current study and build from them. For example, future research should sample from a wide variety of sports as well as competitive levels. Future researchers in this area should also consider using a variety of performance measurement options; self-report, observational, or statistical measures (e.g., win – loss records).

It is recommended that mediational research involving cohesion should be continued. The current study is only the second piece of research to examine the mediational relationship between cohesion and other variables in a sport context. While this study did not find a mediational relationship between coaching efficacy, cohesion and performance, further research needs to be conducted. Mediational research is beneficial to the applied aspect of sport psychology as it provides information as to which

variables should be targeted in order for interventions to be successful (Baranowski et al., 1998).

Overall, the current study provided support for the relationship between cohesion and coaching efficacy, two variables which had never been examined in conjunction to one another. It also offers partial support of Carron's conceptual model of cohesion (1982), whereby coaching efficacy can be viewed as a leadership antecedent. While there was no support for a relationship between coaching efficacy and performance, future research is advised to continue this line of questioning, utilizing different performance measures.

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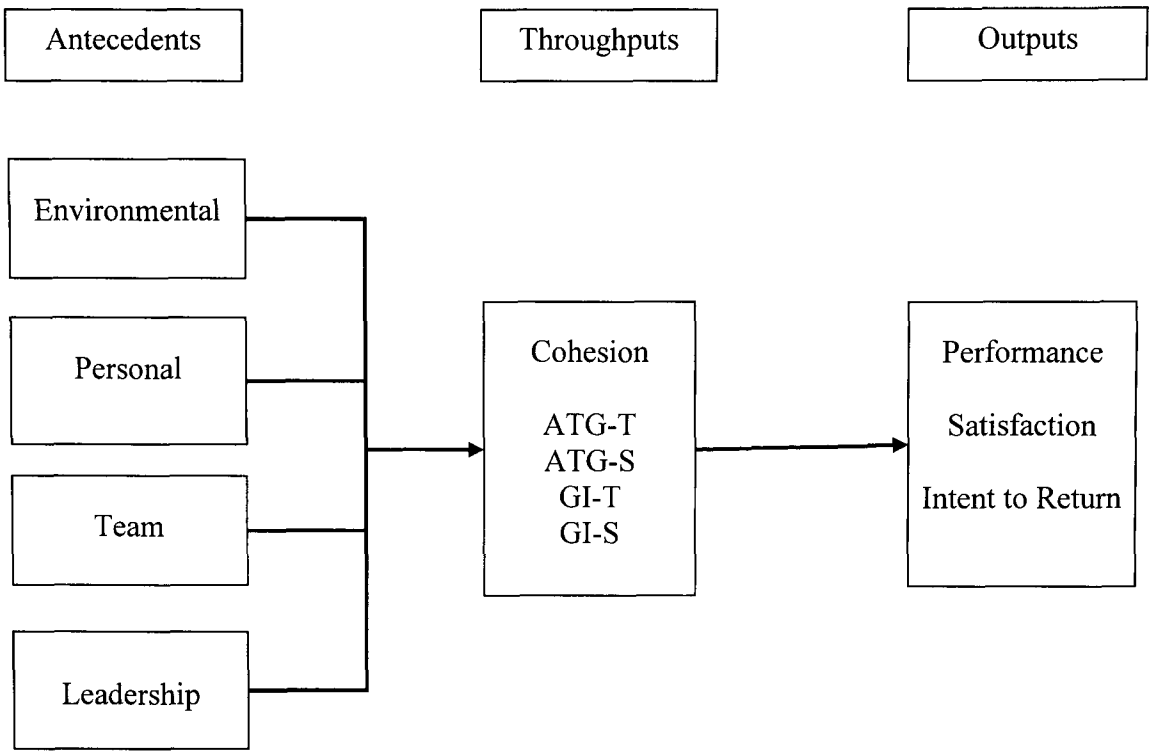
Figure Captions

Figure 1. Conceptual model for the study of cohesion.



Adapted from Carron (1982)

Table 1

Bivariate correlations among cohesion, coaching efficacy and perceived exertion

	ATGT	ATGS	GIT	GIS	ME	CB	SSE	PE-1	PE-2	PE-3	PE-4
ATG-T	-	.53**	.60**	43**	.53**	.31**	.55**	.04	.05	.05	.04
ATG-S		-	.51**	.59**	.43**	.25**	.44**	.20	.08	.20*	.13
GI-T			-	.47**	.53**	.30**	45**	.10	.07	.06	.07
GI-S				-	.33**	.16**	.27**	.02	-.02	-.03	-.02
ME					-	.71**	.77**	.05	.06	.08	.11
CB						-	.47**	.01	.16*	.08	.09
SSE							-	.03	.09	.07	.09
PE-1								-	.37**	.49**	.33**
PE-2									-	.35**	45**
PE-3										-	.81**
PE-4											-

Note. ATG-T = Individual Attractions to the Group – Task, ATG-S = Individual Attractions to the Group – Social, GI-T = Group Integration - Task, GI-S = Group Integration – Social. ME = Motivation Efficacy, CB = Character Building Efficacy, SSE = Skills and

Strategy Efficacy. PE-1 = Perceived Exertion Competition, last four weeks, PE-2 = Perceived Exertion, last competition, PE-3 = Perceived Exertion Practice, last four weeks, PE – 4 = Perceived Exertion, last practice.

*$p<.05$.

**$p<.01$

Table 2

Descriptive statistics of the dimensions of cohesion and coaching efficacy

	M	*SD*
ATG-T	7.70	1.22
ATG-S	7.51	1.31
GI-T	7.39	1.09
GI-S	6.77	1.43
ME	7.50	1.17
SSE	7.28	1.50
CB	7.69	1.15
PE-1	15.85	2.81
PE-2	16.69	2.60
PE-3	14.48	3.08
PE-4	14.55	3.26

Note. ATG-T = Individual Attractions to the Group – Task, ATG-S = Individual Attractions to the Group – Social, GI-T = Group Integration – Task, GI-S = Group Integration – Social. ME = Motivation Efficacy, SSE = Skills and Strategy Efficacy, CB = Character Building. PE-1 = Perceived Exertion Competition, last four weeks, PE-2 = Perceived Exertion, last competition, PE-3 = Perceived Exertion Practice, last four weeks, PE – 4 = Perceived Exertion, last practice.

Cohesion was scored on a 9-point scale with 9 representing a greater endorsement of the construct. Coaching Efficacy was scored on a 10-point scale with 9 representing a greater

endorsement of the construct. Perceived Exertion was scored a 15-point scale with 20 representing greater performance.

Literature Review

The present thesis will be designed to examine whether cohesion mediates the relationship between coaching efficacy and performance. Consequently, the review of literature will be divided into two parts: (a) cohesion, and (b) coaching efficacy.

Cohesion

This section of the thesis will review the literature pertaining to cohesion. First, the construct of cohesion will be defined. Second, the characteristics of cohesion will be reviewed. Third, a conceptual model of cohesion along with the measurement of cohesion will be presented. Finally, the conceptual framework for the study of cohesion will be explained.

Definition of Cohesion

The construct of cohesion has received a great deal attention with a number of researchers attempting to define and conceptualize this construct. One of the first definitions was advanced by Festinger, Schachter, and Back (1950) who defined cohesion as "the total field of forces that act on members to remain in the group" (p. 164). In this definition, the authors distinguished between two sources which contribute to cohesion, the attractiveness of the group, and the ability of the group to assist members in achieving their individual goals. Later that same year, Festinger (1950) advanced a revised definition, whereby cohesion was viewed as "the resultant of all the forces acting on members to remain in the group" (p. 274). Finally, Gross and Martin (1952) put forth another definition, stating that cohesion was "the resistance of a group to disruptive forces" (p. 553), arguing that their definition was superior to Festinger et al. as it focused on what keeps a group together.

Mudrack (1989) critically analyzed all three definitions and noted some of their shortcomings. Primarily, all three of these definitions conceptualized cohesion as being a unidimensional construct, limiting the ability to generalize studies to numerous types of groups. In addition, Mudrack noted that Gross and Martin's (1952) definition is difficult to operationalize, as ethical issues prevent researchers from inflicting 'disruptive forces' on a group. Furthermore, cohesion according to Mudrack, cohesion is not merely a group's ability to withstand disruptions, nor is it only the member's attraction to the group, but rather, a combination of these two elements.

In an attempt to overcome some of the shortcomings of these early definitions, Carron (1982) advanced a multidimensional definition of cohesion, stating that it is, "a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (p. 124). This definition was later revised to include an affective component whereby Carron, Brawley, and Widmeyer (1998) defined it 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). This definition is the most widely used and accepted definition of cohesion (Loughead & Hardy, 2006).

Characteristics of Cohesion

Carron et al.'s (1998) definition highlighted four important characteristics of cohesion. That is, cohesion is multidimensional, dynamic, instrumental, and affective in nature. The multidimensional nature of cohesion can be influenced by a number of different factors which work to keep the group together. However, these factors will not affect every group in the same way, or to the same magnitude. For example, a basketball

team may have high task cohesion (e.g., they have the same goals for the team), but they may have low social cohesion (e.g. the teammates do not get along outside of practice and games). On the other hand, another basketball team may have high social cohesion but low task cohesion.

The second characteristic of cohesion is that it is dynamic in nature. Cohesion is not a stable construct; rather it can fluctuate as a team progresses through its development. For example, a recently formed team is more likely to be united around perceptions of task cohesion (e.g., performance goals), but as the season progresses, the team may develop more social cohesion as friendships are formed.

A third characteristic of cohesion reflects the instrumental nature of this construct; denoting that all groups form for a particular reason (Loughead & Hardy, 2006). For example, sports teams form to fulfill task oriented reasons (e.g. to win a tournament); however, other groups may form to fulfill member's social needs (e.g. the need to belong to a group). In either case, the group serves to fill the instrumental purpose of satisfying the need to belong.

The fourth characteristic of cohesion is its affective component. It was noted that belonging to a group, for either social or task purposes, is fulfilling to group members (Baumeister & Leary, 1995). The bonding felt within a group fulfills the members' need, while being excluded from a group will bring about negative affect, such as depression (Baumeister & Leary).

Conceptual Framework of Cohesion

In order to overcome some of the shortcomings in the measurement of cohesion, Carron, Widmeyer, and Brawley, (1985) argued for the development of a new conceptual

framework. The rationale for a new framework was based on the notion that instead of using patchwork methods to repair existing inventories or develop new measures with similar problems, Carron et al. argued that it was important to go to the root of the problem—the lack of a clear conceptualization of the construct.

Given that cohesion could be viewed as a group property, Carron et al. (1985) developed a conceptual framework based on three assumptions from group dynamics theory. First, the assumption that cohesion can be properly evaluated using the individual member's perception was derived from social cognition theory (Bandura, 1986), which allows researchers to use the individual team members as the level of measurement for a group phenomenon. While cohesion is a group construct, each individual team member experiences every situation and develops his/her own beliefs about the group, and therefore is able to make accurate perceptions about the group environment. The second assumption highlighted the need to distinguish between individual and group orientations. Carron et al. suggested that team members could hold cognitions about the cohesiveness of the team which were related to the group as a whole and the degree to which the team satisfied their own personal needs. As a result two types of cognitions could emerge from the individual; group integration and individual attractions to the group. Group integration refers to the individual's perceptions of the group's unity as a whole; while individual attractions to the group refers to the individual's perceptions about his/her motivations to maintain membership in the group as well as his/her personal cognitions of the group (Carron et al., 1998). The third assumption distinguished between the social and task oriented concerns of group members. The social orientation refers to the member's motivation towards establishing and maintaining social relationships while

the task orientation refers to the member's motivation towards achieving the group's goals.

The combination of the individual-group and social-task assumptions resulted in the creation of a four dimensional conceptual model (see Figure 2). Based on this conceptual model, there are four dimensions of cohesion: Individual attractions to the group-task (ATG-T), individual attractions to the group-social (ATG-S), group integration-task (GI-T), and group integration-social (GI-S) (Carron et al., 1998). ATG-T is defined as the individual's attraction to, as well as, his/her personal involvement in the group's goals, productivity, and objectives. ATG-S is viewed as the individual's attraction to the group as a social unit, as well as the person's feelings about his or her personal acceptance within the group. On the other hand, GI-T is viewed as the individual's feelings about the similarity, closeness, and bonding present within the group around the task. While GI-S is viewed as the individual's feelings about the similarity, closeness, and bonding present within the group as a social unit.

Measurement of Cohesion

Working from a theoretically sound conceptual framework, the next step in overcoming the shortcomings of previous cohesion research was the development of reliable measurement tool based on the four dimensions of cohesion. The result was the development of the Group Environment Questionnaire (GEQ; Carron et al., 1985) which was an 18-item inventory that measured the four dimensions of cohesion on a 9-point Likert scale (1 = *strongly disagree*, 9 = *strongly agree*). The ATG-T scale consisted of four items, an example being: "I like the amount of playing time I get" The ATG-S scale consisted of five items, an example being: "For me, this team is one of the most

important social groups to which I belong" The GI-T scale consisted of five items, an example being: "Our team is united in trying to reach its goals for performance" Finally, the GI-S scale consisted of four items, an example being: "Members of our team would rather go out on their own then get together as a team" The GEQ has shown internal consistency in several studies (e.g., Carron et al., 1985), as well as demonstrating factorial validity (e.g., Li & Harmer, 1996), content validity, concurrent validity, and predictive validity (e.g., Carron et al., 1985).

Conceptual Framework for the Study of Cohesion

In order to study the antecedents and consequences of cohesion, Carron (1982) advanced a linear model consisting of inputs, throughputs, and outputs (see Figure 1). According to Carron, the inputs of the model are the antecedents of cohesion, the throughputs are the manifestations of cohesion (e.g., the four dimensions of cohesion), and the outputs are the consequences of cohesion. Given that the throughput of cohesion has been discussed above, this section of the literature review will focus on the antecedents and consequences of cohesion.

According to Carron (1982), the antecedents of cohesion can be classified into four categories: environmental, personal, group, and leadership. Environmental factors represent the organizational system of the group, and consist of such things as contractual responsibility (e.g., player eligibility, team eligibility), group size (e.g., total number of athletes on the roster), or organizational orientation (e.g., age, gender, competitive level of the team).

The second category that influences cohesion is personal factors. Carron (1982) noted that compiling a complete list of personal factors would be difficult, but can consist

of the individual's motivation (e.g., task, affiliation), individual satisfaction, gender, race, socioeconomic status, work output, and sacrifice behavior (Carron, 1982).

The third antecedent hypothesized to influence cohesion is group factors. Carron (1982) highlighted that group orientation, team ability, team stability, desire for group success, and team norms are group factors capable of influencing team cohesion. Group orientation can be further broken down into two components: social and task forces. A group's ability to succeed at the task will undoubtedly increase the group's task cohesion, as the success increases their efficacy levels. Team stability refers to the length of time a team has been together. The longer a team has been together, the greater their opportunity to develop both task and social cohesion (Carron, 1982).

The final antecedent influencing cohesion is leadership factors. Leadership has been defined as "a process whereby an individual influences a group of individuals to achieve a common goal" (Northouse, 2004, p. 3). To date, four different leadership factors have been examined in regards to cohesion. This body of research has shown that leadership behavior (Westre & Weiss, 1991), leadership style (Schriesheim, 1980), coach-athlete relationship (Carron & Chelladurai, 1981), and the coach-team relationship (Schachter, Ellertson, McBride, & Gregory, 1951) have an influence on perceptions of team cohesion.

Insofar as the consequences of cohesion are concerned, cohesion has been found to have an effect on a variety of outcomes including performance, intention to return, and perceived belonging. One of the first meta-analysis examining the cohesion-performance relationship was conducted by Mullen and Copper (1994) consisting of 49 studies. The results indicated that there was a significant cohesion-performance relationship (r = .25).

However, from the 49 studies utilized in the meta-analysis, only 8 were from the sports domain, limiting the generalizability of these findings to a sporting context. In addition, moderating variables influencing the cohesion-performance relationship were not analyzed.

To overcome the limitations of the Mullen and Copper (1994) meta-analysis, Carron, Colman, Wheeler, and Stevens (2002) conducted a more comprehensive sport specific meta-analysis consisting of 46 studies. In addition to focusing on the cohesion-performance relationship in sport teams, the authors also examined a variety of moderating variables such as research design, cohesion type, gender, performance measurement (self-report compared to actual performance), the relationship direction, and sport type.

The results revealed a strong positive relationship between performance and cohesion (Cohen's d = .66). In terms of the moderating variables, there was a non-significant difference in the cohesion-performance relationships when examining research design. More specifically, studies using a correlational paradigm had a slightly stronger effect size (Cohen's d = .69) compared to those studies using an experimental paradigm (Cohen's d = .41). As for cohesion type, the results showed that social cohesion was found to have a stronger relationship to performance (Cohen's d = .70) than task cohesion (Cohen's d = .58), but the difference was statistically non-significant. As for gender, there was a statistically significant difference between male and female athletes. It was found that female athletes had a larger cohesion-performance relationship (Cohen's d = .95), compared to male athletes (Cohen's d = .56). As for how performance was measured (self-report vs. actual), the results showed no difference between the

cohesion-performance relationship when assessed through self-reports (Cohen's d = .58) or through actual behavioral indices (Cohen's d = .69). This finding indicates that self-report measures of performance provide similar results as actual behavioral measures. In terms of the direction of the cohesion-performance relationship, no differences were found. That is, when examining cohesion as a cause of performance (Cohen's d = .57) compared to cohesion as a result of performance (Cohen's d = .69), there was no statistical difference. Finally, results also showed that the cohesion-performance relationship was not moderated by the team's level of competition or sport type. That is, regardless of whether the athletes were playing at the professional, club, or recreational level, the cohesion-performance relationship remained unchanged. In terms of sport type, there was a slightly stronger cohesion-performance relationship found in co-active sports (Cohen's d = .77) compared to interactive sports (Cohen's d = .66). However, the difference was not statistically significant.

In addition to examining outcomes such as performance, other outcome variables have been examined including intention to return and perceived belonging. Each of these will now be discussed.

Employing a sample of recreational and elite level female ringette players, Spink (1995) examined whether perceptions of cohesion could be used to predict intention to return to the sport the following season. The participants completed the GEQ to assess cohesion, and intention to return was assessed through a one-item item asking "How likely are you to return to playing ringette next season?" The findings revealed a difference between athletes who intended to return and those who did not intend to return the following season. Specifically, for recreational ringette players, the cohesion

dimension of ATG-S was able to discriminate whether these athletes would return or not. As for the elite level ringette players, the results showed both dimensions of social cohesion (ATG-S, GI-S) were able to discriminate whether these athletes return to their teams next season.

Belonging refers to an individual's need to feel social bonds and connections with others (Baumeister & Leary, 1995). Allen (2006) examined the relationship between the perceived belonging in sport and the two social dimensions of cohesion (ATG-S, GI-S) in a sample of 259 university varsity athletes. The participants completed the 18 item Perceived Belonging in Sport inventory (PBS; Allen, 2003) along with the nine items from the GEQ to assess ATG-S and GI-S. The results indicated that perceived belonging had a strong, positive relationship to ATG-S (r = .51), and a moderate, positive relationship to GI-S (r = .39).

Coaching Efficacy

This section of the thesis will review the literature pertaining to coaching efficacy. First, the construct of coaching efficacy will be defined. Second, a conceptual model of coaching efficacy will be presented. Third, a measure of coaching efficacy, Coaching Efficacy Scale (Feltz, Chase, Moritz, & Sullivan, 1999), will be described. Third, research using the Coaching Efficacy Scale will be reviewed.

As noted earlier, Carron's (1982) conceptual model for the study of cohesion hypothesizes that leadership will influence perceptions of cohesion. In fact, research has shown that coaching behaviors (Westre & Weiss, 1991), leadership style (Schriesheim, 1980), coach-athlete relationship (Carron & Chelladurai, 1981), and the coach-team relationship (Schachter, Ellertson, McBride, & Gregory, 1951) have been shown to

influence perceptions of team cohesion. Recently another type of coaching factor has gained some attention that may be related to cohesion, namely coaching efficacy.

Definition of Coaching Efficacy

Coaching efficacy is a specific form of efficacy which pertains to individuals who hold a coaching position. Feltz, et al. (1999) defined coaching efficacy as the extent to which coaches believe they have the capacity to affect the learning and performance of their athletes.

Coaching Efficacy Model

In order to guide coaching efficacy research, Feltz et al. (1999) advanced a conceptual model of the factors that influenced coaching efficacy and the factors that coaching efficacy would influence (see Figure 3). This conceptualization was based on three other efficacy models, namely the model of teacher efficacy (Denham & Michael, 1981), Bandura's (1986) conceptualization of self-efficacy, and Park's (1992) conceptualization of coaching confidence. The model of coaching efficacy is a linear framework comprised of antecedents (the sources of coaching efficacy), throughputs (coaching efficacy factors), and outputs (outcomes of coaching efficacy).

The antecedents of coaching efficacy have been classified into four sources: experience and preparation, prior success, perceived ability of the athletes, and perceived social support. First, experience and preparation includes the coach's history, background, and familiarity with the sport, the level of competition they have played or coached, and their level of education. Second, prior success refers to the coach's win/loss record, both with his/her current team and previous teams. Third, perceived ability of the athletes refers to how a coach recognizes their athlete's capabilities, which in turn will

impact how efficacious the coach believes they are as a team. Finally, perceived social support refers to the support the coach receives from the school, community, parents and athletes themselves.

The throughput of the model consists of four coaching efficacy dimensions: game strategy, motivation, technique, and character building. Game strategy efficacy refers to the coaches' belief in their ability to coach during competition and lead their team to victory. Motivation efficacy refers to the coaches' belief in their ability to impact their athletes' mental states and psychological skills. Technique efficacy is the belief coaches have in their instructional and diagnostic skills relevant to their sport. Finally, character building efficacy refers to the coaches' belief in their ability to positively influence their athletes' attitude and personal development.

The four outputs of the model consist of coaching behavior, player and team satisfaction, player and team efficacy, and player and team performance. Coaching behavior includes, but is not limited to, leadership style, communication, and commitment. Player and team satisfaction refers to the athlete's degree of contentment with a variety of factors, including but not limited to, the coach, teammates, and athletic performance. Player and team efficacy is analogous to the constructs of self and collective efficacy respectively. Self-efficacy refers to an individual's perception of their capabilities, whereby collective efficacy refers to a group's shared belief in its joint capabilities to execute a given action to produce a desired outcome (Bandura, 1997). Finally, player and team performance can include the team's win/loss record, individual player stats, or a players' objective opinion of their performance.

Measuring Coaching Efficacy

The first measure of coaching efficacy was advanced by Park (1992) with the development of the Coaching Confidence Scale. This inventory contained 10 items measuring three dimensions of coaching confidence: technique confidence (e.g., teaching skills), interpersonal confidence (e.g., effective communication), and competition confidence (e.g., coaching under pressure). Park found partial support for the construct validity of the scale, making three suggestions to future researchers. First, that coaching efficacy being viewed as a multidimensional construct. Second, that additional items be added to the inventory. Third, the identification of other variables that influence coaching confidence.

Using these recommendations as a guide, Feltz et al. (1999) developed the Coaching Efficacy Scale (CES; see Appendix C), a 24 item inventory which assesses four dimensions of coaching efficacy (game strategy, motivation, technique, and character building) on a 10-point Likert scale (0 = *not at all confident;* 9 = *extremely confident*). Motivation efficacy is assessed by seven items, an example being: "Build the self-esteem of the athletes?" Game strategy efficacy is assessed by seven items with an example being: "Adjust the game/meet strategy to fit the team's talent?" Technique efficacy is represented by six items, an example being: "Teach the skills of the sport?" The final dimension, character building efficacy is represented by four items, an example of which is: "Instill an attitude of respect for others?"

The development of the CES was conducted in two phases, the first being scale development, while the second phase focused on establishing the predictive validity of the newly constructed inventory. In the first phase, Feltz et al. (1999), with the help of

varsity coaches from a variety of sports, developed 41 items to measure the four dimensions of coaching efficacy (game strategy, motivation, technique, and character building). Next, the authors sampled 517 high school head coaches to establish factorial validity of the CES. The results revealed a four factor structure. Seventeen items were deleted, due to factor loadings of lower than .50 or with high loadings on more than one factor. In addition, Cronbach alphas for each of the four dimensions were acceptable based on Nunnally's (1978) guidelines. In particular, game strategy had a value of .88, motivation had a value of .91, technique a value of .89, and character building a value of .88.

In the second phase of the CES's development, Feltz et al. (1999) tested the predictive validity of the CES using 69 high school basketball coaches. The authors hypothesized that a greater coaching winning percentage, more years of coaching experience, higher perceived ability of the team, and greater social support (e.g., community, parental support) would be positively related to greater coaching efficacy. The results showed that the coaching efficacy dimension of game strategy was positively related to coaching winning percentage (r = .29), years in coaching (r = .30), and community support (r = .27). As for the coaching efficacy dimension of motivation, the results showed that it was positively related to coaching winning percentage (r = .30), years in coaching (r = .29), perceived ability of the team (r = .31), community support (r = .33), and parental support (r = .31). Finally, the coaching efficacy dimension of technique was positively related to community support (r = .35).

Research Using the CES

Research examining coaching efficacy is in its infancy. To date, only a handful of studies have been conducted. This section of the literature review is divided into three sections. The first section examines the effect of a coaching education program on coaching efficacy. The second section reviews the research examining the sources of coaching efficacy. The third section reviews the research on the influence of coaching efficacy on various outcome variables.

Coach education. Malete and Feltz (2000) examined the effects of a coach education program on coaching efficacy in the United States. Using a quasi-experimental design, high school coaches were assigned to an experimental or control condition. All of the coaches completed the CES on two occasions. Specifically, coaches in the experimental condition (n = 29) completed the CES prior to and after the coach education program, while the coaches in the control condition (n = 22) completed the CES twice, separated by a two-week interval. Coaches in the experimental condition attended the Program for Athletic Coaches Education workshop (PACE; Seefeldt, 1990), a 12 hour program that is designed to increase a coach's knowledge on a wide variety of topics such as, motivating athletes, injury prevention and care, discipline, and game strategy. The results showed that coaches in the experimental and control condition did not differ on coaching efficacy (i.e., character building, motivation, game strategy, technique) prior to the coaches in the experimental condition attending the PACE workshop. However, after completing the PACE workshop, coaches in this condition had higher coaching efficacy than their control counterparts. Specifically, coaches in the experimental condition had higher game strategy and technique efficacy than their control counterparts.

In a similar study, Campbell and Sullivan (2005) examined the effects of the National Coaching Certification Program (NCCP) on a sample of 213 novice coaches in regard to coaching efficacy. The coaches represented a variety of sports (e.g., baseball, soccer, gymnastics, football) and had less than three years coaching experience. Coaches completed the CES prior to the beginning of the course, and immediately following completion. Results indicated a significant increase in all four dimensions of coaching efficacy following completion of the course. Further, it was found that female coaches showed a greater increase in coaching efficacy after the course than did their male counterparts.

Sources of coaching efficacy. As indicated in the Feltz et al. (1999) model of coaching efficacy, it is hypothesized that the antecedents (or sources of coaching efficacy) would influence the dimensions of coaching efficacy (i.e., character building, motivation, game strategy, and technique). Myers, Vargas-Tonsing, and Feltz (2005) examined the sources of coaching efficacy with a sample of intercollegiate coaches. The sources of coaching efficacy measured included perceived team ability, parent support, community support, coaching winning percentage, and years as a coach. The CES was administered to the coaches near the end of the regular season. The results showed the coaching efficacy dimension of character building was significantly related to perceived team ability (r = .29), parent support (r = .25), and community support (r = .22). The coaching efficacy dimension of motivation efficacy was associated with perceived team ability (r = .44), parent support (r = .32), community support (r = .29), and coaching winning percentage (r = .26). Game strategy efficacy was positively related to perceived team ability (r = .28), parent support (r = .18), coaching winning percentage (r = .33),

and years as a coach (r = .18). Finally, technique efficacy was related to team ability (r = .21), and parent support (r = .20).

Using a qualitative approach, Chase, Feltz, Hayashi, and Hepler (2005) conducted semi-structured in-depth interviews with 12 high-school basketball coaches. The purpose of this study was to identify strategies used to enhance coaching efficacy. Using an inductive content analysis procedure, the researchers identified six sources of coaching efficacy. Player development accounted for 27% of the responses, coaches' development accounted for 23%, knowledge/preparation accounted for 22%, leadership skills accounted for 15%, player support accounted for 8%, and past experience accounted for 5% of the responses. These six sources are similar to the sources advanced by Feltz et al. (1999) in their conceptual model of coaching efficacy as well as Bandura's self-efficacy theory (1986). Further, five of the six sources identified by the coaches can be linked back to Bandura's (1986) mastery experiences source of self-efficacy. Player development, coaches' development, knowledge/preparation, leadership skills, and past experience can all be related to the source of mastery experiences.

Outcomes of coaching efficacy. Feltz et al.'s (1999) model highlighted four outcomes of coaching efficacy: coaching behavior, player and team satisfaction, player and team performance, and player and team efficacy This section of the literature review will examine each of these outcomes in relation to coaching efficacy.

Myers et al. (2005) examined the impact of coaching efficacy on team performance, operationalized as winning percentage. A sample of 135 varsity head coaches completed the CES and the researchers obtained the winning percentage for the teams via league websites. The results showed that coaching efficacy as rated by the

coach (a composite score of game strategy, motivation, technique and training, and character building) predicted a team's winning percentage for men's teams ($F(1, 34) = 5.75, p = .02$) but not for women's teams ($F(1, 63) = .88, p = .35$).

Sullivan and Kent (2003) examined the impact of coaching efficacy on leadership behavior. A sample of 224 coaches completed both the CES and the Leadership Scale for Sport (Chelladurai & Saleh, 1980). It was found that coaching behavior of training and instruction, and positive feedback was predicted by motivation and teaching efficacy. That is, the more confident a coach was in his/her ability to motivate and provide instructions, the more he/she engaged in the behaviors of positive feedback, and training and instruction.

A study conducted by Vargas-Tonsing, Warners, and Feltz (2003) examined the relationship between coaching efficacy, and player and team efficacy. Utilizing a sample of 133 female varsity athletes and their coaches ($n = 12$) from high school volleyball, player and team efficacy questionnaires were administered to the athletes while the coaches completed the CES. The player efficacy questionnaire was developed by the authors and addressed the players' beliefs in their abilities to perform specific skills and their overall performance. The team efficacy questionnaire followed the same format as the player questionnaire, but instructed the athletes to respond about their belief in their team's abilities to perform skills. All questionnaires were administered at the mid-point of their season. Coaching efficacy was found to be a significant predictor of team efficacy, but not of player efficacy. Specifically, of the four subscales, motivation efficacy and character building efficacy predicted team efficacy. However, it should be noted that character building efficacy was negatively associated with team efficacy.

whereby coaches who were confident in their ability to build the character of their athletes had athletes who were less confident in their team's ability to be successful. The two other efficacy factors, technique and game strategy did not influence team or player efficacy.

The final outcome that has been examined is the level of commitment coaches have to their team. Commitment is critical to a team's well-being as it has been viewed to impact an athlete's participation, the effort the athlete put forth into the task, and the overall performance of his/her responsibilities (Chelladurai, 1999). Kent and Sullivan (2003) examined the relationship between coaching efficacy and team commitment in a sample of 224 collegiate coaches from a variety of sports. The coaches completed the CES as well as an instrument developed by Meyer and Allen (1991), which measures affective, continuance, and normative commitment. It was found that coaching efficacy significantly predicted affective and normative commitment. Specifically, affective commitment was found to be significantly correlated to motivation, strategy and character building efficacies while normative commitment was related to motivation and character building efficacies.

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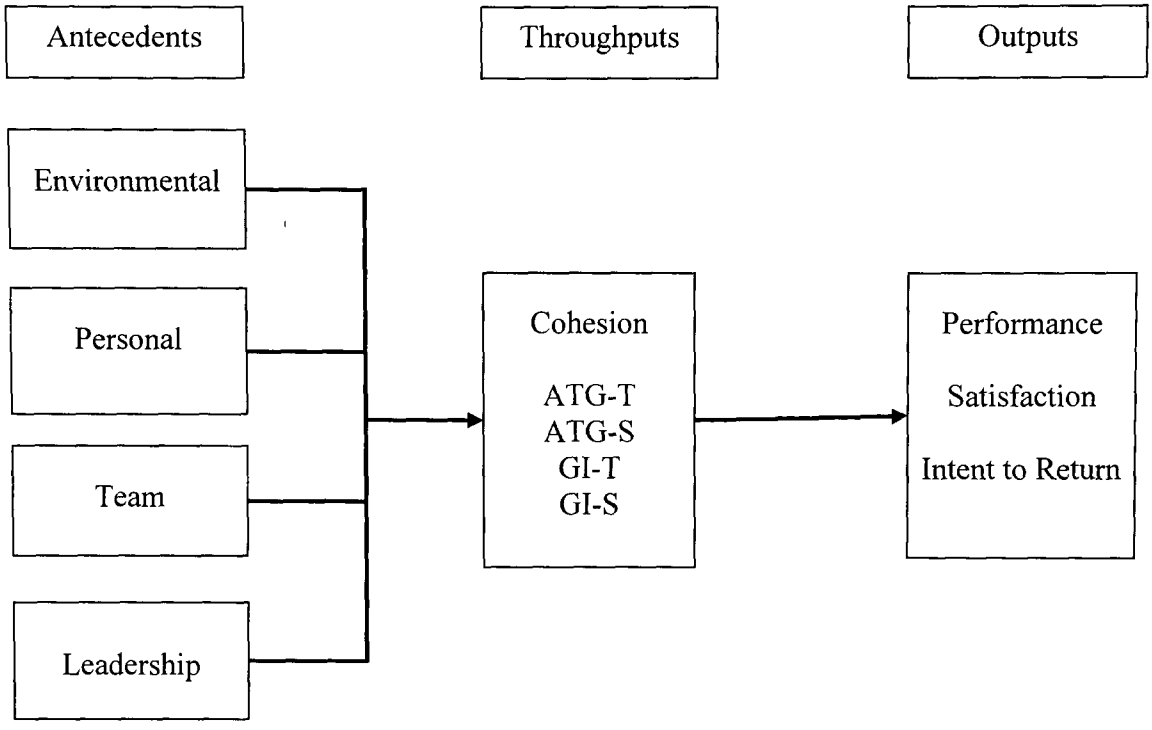
Figure Captions

Figure 1. Conceptual framework for the study of cohesion. 60

Figure 2. Conceptual model of cohesion.....61

Figure 3. Conceptual framework of coaching efficacy.....62



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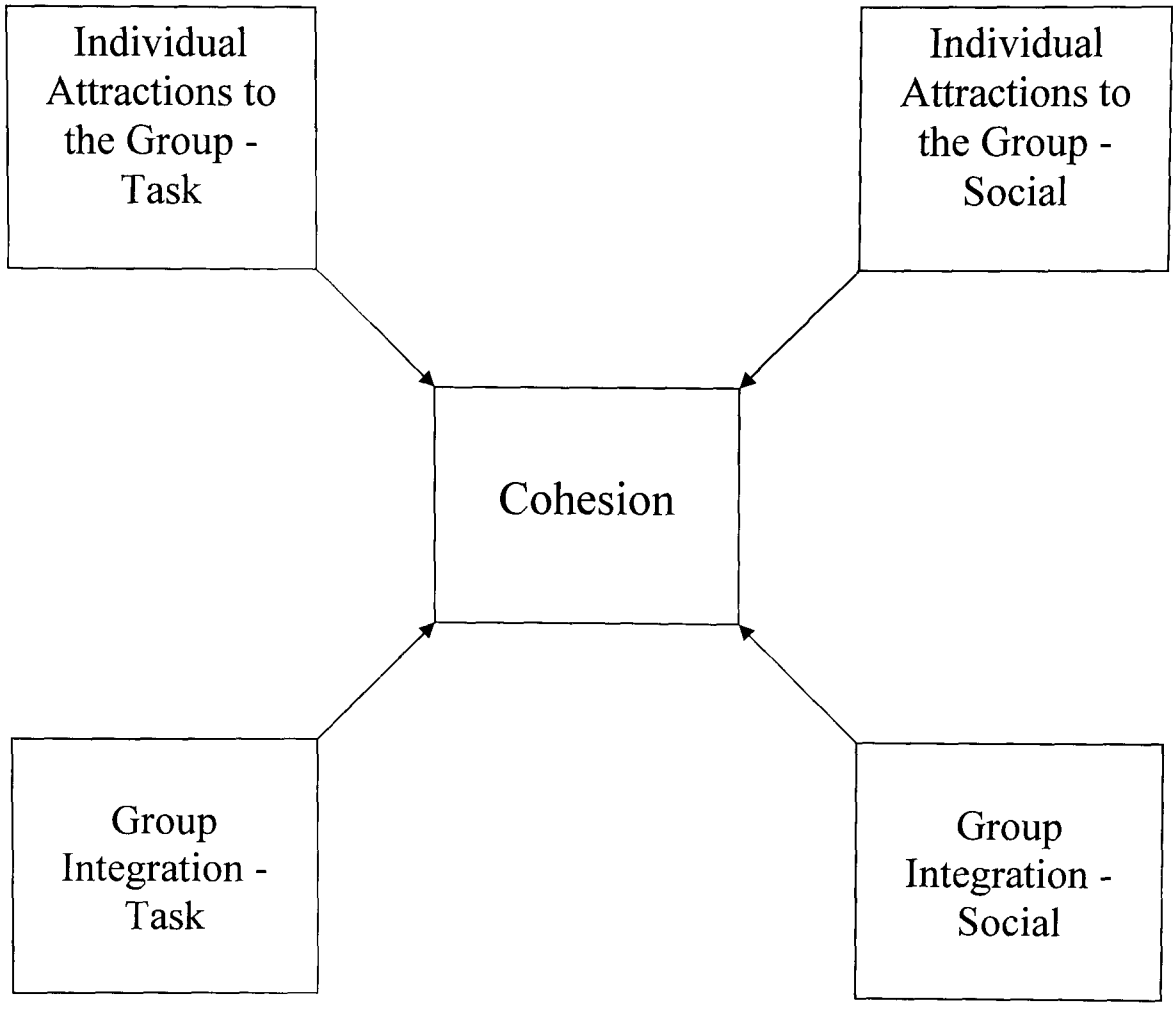
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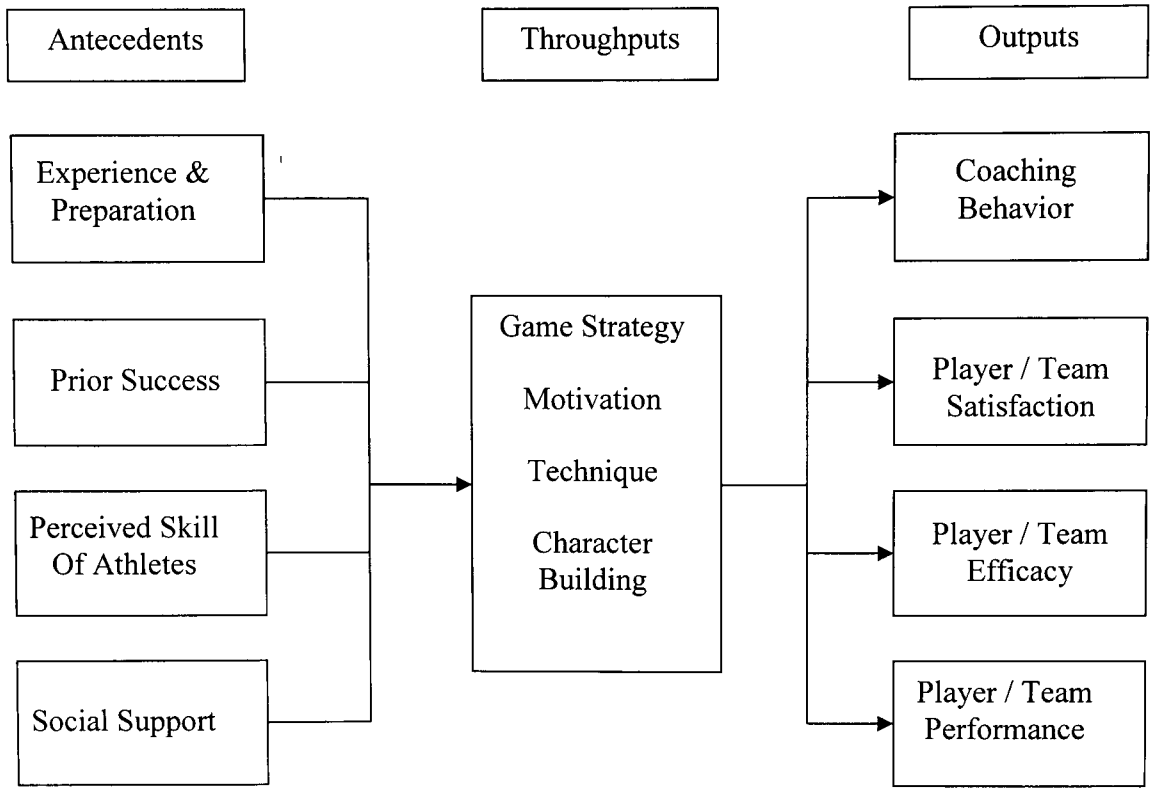
Cohesion
Group Integration - Task
Group Integration - Social



Adapted from Feltz, D. L., Chase, M. A., Moritz, S. E., & Sullivan, S. J. (1999)

Appendix A

Group Environment Questionnaire (GEQ)

This survey looks at what you think about your team. There are no wrong or right answers, so please answer honestly. Some of the questions may seem repetitive, but please answer ALL questions. Your answers will not be shared with anyone.

The following questions look at your feelings about **your own involvement with this team**. Please CIRCLE a number from 1 to 9 to indicate which number best describes your feelings about each question.

1. I enjoy being a part of the social activities of this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

2. I like the amount of playing time I get.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

3. I am going to miss my teammates when the season ends.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

4. I am happy with how much my team wants to win.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

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

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

6. On this team, I get a lot of chances to improve my skills.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

7 I would rather hang out with my teammates than with other friends.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

8. I like the style of play on this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

9. Personally, this team is one of the most important groups I belong to.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

The following questions look at your feelings about **the team as a whole**. Please CIRCLE a number from 1 to 9 to indicate which number best describes your feelings about each question

10. Our team works together in trying to reach its goals for performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

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

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

12. When we lose, or play badly, we take responsibility as a team for our performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

13. Our team does not work well together.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

14. Members of our team always hangout together.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

15. Members of our team have different goals for how we want the team to play.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

16. Members of our team would like to spend time together in the off season.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

17 If teammates have problems in practice, everyone wants to help them so we can play better as a team.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

18. Members of our team hang out together outside of practice and games.

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

Appendix B

Coaching Efficacy Scale

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

How confident are you in your head coach's ability to….

1. Maintain confidence in their athletes?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

2. Recognize opposing team's strengths during competition?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

3. Mentally prepare athletes for game/meet strategies?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

4. Understand competitive strategies?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

5. Instill an attitude of good moral character?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

6. Build the self-esteem of their athletes?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

7 Demonstrate the skills of the sport?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

8. Adapt to different game/meet situations?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

9. Recognize opposing team's weakness during competition?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

10. Motivate their athletes?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

11. Make critical decisions during competition?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

12. Build team cohesion?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

13. Instill an attitude of fair play among their athletes?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

14. Coach individual athletes on technique?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

15. Build the self-confidence of their athletes?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

16. Develop athlete's abilities?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

17. Maximize the team's strengths during competition?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

18. Recognize talent in their athletes?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

19. Promote good sportsmanship?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

20. Detect skill errors?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

21. Adjust the game/meet strategy to fit the team's talent?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

22. Teach the skills of the sport?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

23. Build team confidence?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

24. Instill an attitude of respect for others?

0	1	2	3	4	5	6	7	8	9
Not at all Confident									Extremely Confident

Appendix C

Borg's Perceived Exertion Scale

The following scale pertains to how hard you work during **COMPETITION**
Using the scale below, please circle the number that best represents how hard you worked:

In the last four weeks	In your last competition
6-	6-
7- very, very light	7- very, very light
8-	8-
9- very light	9- very light
10-	10-
11- fairly light	11- fairly light
12-	12-
13- somewhat hard	13- somewhat hard
14-	14-
15- hard	15- hard
16-	16-
17- very hard	17- very hard
18-	18-
19- very, very hard	19- very, very hard
20-	20-

The following scale pertains to how hard you work during **PRACTICE**
Using the scale below, please circle the number that best represents how hard you worked:

In the last four weeks	In your last practice
6-	6-
7- very, very light	7- very, very light
8-	8-
9- very light	9- very light
10-	10-
11- fairly light	11- fairly light
12-	12-
13- somewhat hard	13- somewhat hard
14-	14-
15- hard	15- hard
16-	16-
17- very hard	17- very hard
18-	18-
19- very, very hard	19- very, very hard
20-	20-

Appendix D

Demographic Questionnaire

Please complete the following:

Age: _____ Gender: Male / Female

Sport: _____

How long have you been on your current team: _____

How long have you been coached by your current head coach: _____

Years of experience playing your sport: _____

Appendix E

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LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

The Influence of Coaching Efficacy on Team Cohesion and Performance

You are asked to participate in a research study conducted by Ashleigh Baker (student) under the direction of Dr Todd Loughead (faculty) from the Department of Kinesiology at the University of Windsor This research is being conducted as fulfilment of the requirements for the thesis of a Masters Degree in Human Kinetics

If you have any questions or concerns about the research, please feel to contact either Ms Ashleigh Baker at 519-253-3000 ext 4058 or Dr Todd Loughead at 519-253-3000 ext 2450

PURPOSE OF THE STUDY

To examine the influence of coaching efficacy on team cohesion and performance in interdependent sport teams

PROCEDURES

If you volunteer to participate in this study, you will be asked to complete a one time survey package during the season involving a Team Questionnaire and Coaching Efficacy Scale The survey package will be distributed by the primary investigator and should only take approximately 20 minutes to complete By submitting this survey, you are giving implied consent

POTENTIAL RISKS AND DISCOMFORTS

There are no foreseeable psychological or physical risks or discomforts associated with participation in this study

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

The information gained from this study will help advance knowledge in the field of sport psychology The results will help to better understand how coaching efficacy impacts team cohesion This knowledge can be used by sport psychology consultants to enhance the effectiveness of team building interventions

PAYMENT FOR PARTICIPATION

You will not be compensated for your participation in this study However, if you chose, you can enter your name into a draw for a MP3 player

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission All data will be kept in a locked cabinet which will only be accessible by the primary investigator Data will be kept secured for seven years, when it will then be destroyed

PARTICIPATION AND WITHDRAWAL

Participation in this study is voluntary You can choose whether to be in this study or not If you volunteer to be in this study, you may withdraw at any time while you are filling out the surveys You may also refuse to answer any questions and still remain in the study

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

The investigators will provide contact information to the subjects and the coaches of the teams used in the study, should you be interested in obtaining the results of this study As well, the results will be posted at the University of Windsor's Research Ethics Board website by August 2008 (http //www uwindsor ca/reb) If you have any additional concerns or questions, you can email or call the investigators at the address or number above Please keep this letter of information

SUBSEQUENT USE OF DATA

This data may be used in subsequent studies

RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty If you have questions regarding your rights as a research subject, contact Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4, Telephone 519-253-3000, ext 3948, e-mail ethics@uwindsor ca

Appendix F

University of Windsor
thinking forward

CONSENT TO PARTICIPATE IN RESEARCH

The Influence of Coaching Efficacy on Team Cohesion and Performance

You are asked to participate in a research study conducted by Ashleigh Baker (student) under the direction of Dr. Todd Loughead (faculty) from the Department of Kinesiology at the University of Windsor. This research is being conducted as fulfilment of the requirements for the thesis of a Masters Degree in Human Kinetics.

If you have any questions or concerns about the research, please feel to contact either Ms. Ashleigh Baker at 519-253-3000 ext. 4058 or Dr. Todd Loughead at 519-253-3000 ext. 2450.

PURPOSE OF THE STUDY

To examine the influence of coaching efficacy on team cohesion and performance in interdependent sport teams.

PROCEDURES

If you volunteer to participate in this study, you will be asked to complete two questionnaires at one time during your season, the Group Environment Questionnaire and the Coaching Efficacy Scale. The questionnaires will be distributed by the primary investigator and should only take approximately 20 minutes to complete.

POTENTIAL RISKS AND DISCOMFORTS

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

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

The information gained from this study will help advance knowledge in the field of sport psychology. The results will help to better understand how coaching efficacy impacts team cohesion. This knowledge can be used by sport psychology consultants to enhance the effectiveness of team building interventions.

PAYMENT FOR PARTICIPATION

You will not be compensated for your participation in this study. However, if you chose, you can enter your name into a draw for a MP3 player.

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission All data will be kept in a locked cabinet which will only be accessible by the primary investigator Data will be kept secured for seven years, when it will then be destroyed

PARTICIPATION AND WITHDRAWAL

Participation in this study is voluntary You can choose whether to be in this study or not If you volunteer to be in this study, you may withdraw at any time while you are filling out the surveys You may also refuse to answer any questions and still remain in the study

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

The investigators will provide contact information to the subjects and the coaches of the teams used in the study, should you be interested in obtaining the results of this study As well, the results will be posted at the University of Windsor's Research Ethics Board website by August 2008 (http //www uwindsor ca/reb) If you have any additional concerns or questions, you can email or call the investigators at the address or number above Please keep this letter of information

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RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty If you have questions regarding your rights as a research subject, contact Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4, Telephone 519-253-3000, ext 3948, e-mail ethics@uwindsor ca

SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study, The Influence of Coaching Efficacy on Team Cohesion, 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 Subject_____

Signature of Subject Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research

Signature of Investigator Date

VITA AUCTORIS

NAME:	Ashleigh Baker
PLACE OF BIRTH:	London, Ontario, Canada
YEAR OF BIRTH:	1983
EDUCATION:	University of Windsor, Windsor, Ontario 2006-2008, M.H.K. Brock University, St. Catharines, Ontario 2002-2006, B.PhEd. Hons. A.Y Jackson Secondary School, Kanata, Ontario 2000-2002 Earl of March Secondary School, Kanata, Ontario 1997-2000
PRESENTATIONS:	"Testing Cohesion as a Mediator Between Coaching Efficacy and Performance" Presented at Kinesiology Research Day, University of Windsor, Windsor, Ontario, April 2008. "The Influence of Cohesion on Coaching Efficacy and Performance" Presented at Eastern Canadian Sport and Exercise Psychology Symposium, Laurentian University, Sudbury, Ontario, March 2008. "Collective Efficacy and Performance in an Additive Team Sport" Presented at Canadian Society for Psychomotor Learning and Sport Psychology, Windsor, Ontario, November 2007 "Characteristics of Athlete Leadership in Figure Skating Dyads" Presented at North American Society for Psychology of Sport and Physical Activity, San Diego, California, June. 2007.

"The Role of Athlete Leadership in Dyadic Team Sports" Presented at Eastern Canadian Sport and Exercise Psychology Symposium, Queens University, Kingston, Ontario, March, 2007

"An Investigation of Athlete Leadership in Figure Skating" Presented at Kinesiology Research Day, University of Windsor, Windsor, Ontario, March, 2007.

"Collective Efficacy in an Additive Team Sport" Presented at Eastern Canadian Sport and Exercise Psychology Symposium, University of Ottawa, Ottawa, Ontario, March, 2006.

SCHOLARLY EXPERIENCES:

ESCEPS, Ottawa, 2006
ESCEPS, Kingston, 2007
NASPSPA, San Diego, 2007
SCAPPS, Windsor, 2007
ECSEPS, Sudbury, 2008