The Influence of Motivation and Cohesion on Future Participation in Physical Activity

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ABSTRACT

The purpose of the present study was to determine whether perceptions of cohesion served as a mediator between motivation and future participation (operationalized as intention to return). The participants were 162 intramural athletes participating in various team sport activities. Each participant completed a questionnaire that assessed cohesion (individual attractions to the group-task and –social; group integration-task and-social), motivation (amotivation, external regulation, introjected regulation, identified regulation, intrinsic motivation), and intention to return (using a one-item statement). The results found two mediational relationships: (a) individual attractions to the group-task served to mediate the relationship between intrinsic motivation and intention to return, (b) group integration-task served to mediate the relationship between intrinsic motivation and intention to return. A number of aspects related to the specific results are discussed.

RÉSUMÉ

Le but de la présente étude était de déterminer si les perceptions de cohésion servaient de médiateur entre la motivation et la participation future aux activités intramurales (opérationnalisé comme l'intention de retour). Les participants étaient constitués de 162 athlètes intramuraux participant à divers sports d'équipe. Chaque participant a complété un questionnaire mesurant la cohésion (attractions individuelles au groupe-tâche et –social; integration au groupe-tâche et –social), motivation (amotivation, régulation externe, régulation introjectée, régulation identifiée, motivation intrinsèque), et l'intention de retour (en utilisant un item). Les résultats ont démontré deux relations médiatrices : (a) l'attraction individuelle au groupe-tâche a servi de médiateur dans la relation entre la motivation intrinsèque et l'intention de retour, (b) l'intégration au groupe-tâche a servi de médiateur dans la relation entre la motivation intrinsèque et l'intention de retour. Les résultats spécifiques sont discutés.

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There is a common belief that regular physical activity is related to health (Blair, 1988). Not surprisingly, one behavioural change currently recommended by health professionals is the incorporation of regular physical activity into one's lifestyle (Garcia & King, 1991). In fact, research has shown that physical activity not only contributes to sustained independent living but also improves pain management, decreases mortality rates, decreases risk of cardiovascular diseases, lowers the risk of developing non-insulin dependent diabetes mellitus, reduces depression and anxiety, improves mood, and maintains functional ability (Ferrell, Josephson, Pollan, Loy, & Ferrell, 1997; Finucane, et al., 1997; Leith 1994; US Department of Health and Human Services, 1996). Despite the benefits of regular physical activity, approximately 56% of Canadians 20 years of age and older remain physically inactive (Statistics Canada, 2002). Given the importance of being physically active, keeping individuals involved in regular physical activity is an extremely important issue. However, as Dishman, Sallis, and Orenstein (1985) noted adherence rates are problematic whereby 50% of adults who begin a supervised exercise program typically drop-out within the first 6 months. This type of statistic is even more alarming since "involvement in regular exercise is found to decrease with increasing age groups among adults" (Duda & Tappe, 1988, p. 543). It is therefore necessary to determine which factors contribute to increasing and maintaining physical activity behaviours.

Although researchers have attempted to determine factors associated with adherence in physical activity, the majority of that research has focused on the individual (Loughead, Colman, & Carron, 2001; Spink & Carron, 1994). This is unfortunate since an individual's behaviour is not only influenced by individual factors but also by the social context (Lewin, 1935). That is, the social context has an important meaning to participants since it provides opportunities for

interpersonal interactions with other individuals. In fact, Baumeister and Leary (1995) suggested that "human beings are fundamentally and pervasively motivated by a need to belong" (p. 522). Similarly, Ryan, Deci, and Grolnick (1995) noted that social bonds (e.g., cohesion) are necessary for proper psychological functioning. Thus, to gain a better understanding of adherence behaviours, it is important to understand the social context (e.g., the group). As such, Carron (1982) suggested that "groups are social units and cohesion is the construct used to represent the strength of the social bond within the group" (p.124). The fact that cohesion is used to represent the strength of the social bond is not surprising since social scientists have labeled cohesion to be the most important small group variable (Golembiewski, 1962; Lott & Lott, 1965).

Given the importance of cohesion, Carron (1982) developed a conceptual framework for the examination of cohesion in groups. The Carron framework is a linear model consisting of inputs, throughputs, and outputs. The inputs are the antecedents of cohesion and are classified into four factors: environmental, personal, leadership, and group. First, *environmental factors* are viewed as the organizational orientation contributing to the degree of cohesiveness within a group and are represented by such things as group goals, strategies, age, and gender. The next component influencing the cohesiveness of a group is *personal factors*. Although it is difficult to outline a complete list of personal factors, Carron noted that individual group members can be oriented in three directions, (a) toward the completion of the group's task (e.g., task motivation), (b) toward the establishment and maintenance of happy, harmonious relationships within the group (e.g., affiliation motivation), and (c) toward the achievement of direct, personal rewards of satisfactions from the group and its activities (e.g., self-motivation, anxiety, and social loafing). The third factor influencing cohesion is *leadership.* Schriesheim (1980) suggested that leader behaviour and leadership style are two variables that influence group cohesiveness. The fourth

component influencing group cohesiveness is *group factors* which includes aspects such as group task, group success, group orientation, group productivity norm, group ability, and group stability.

Insofar as the throughputs of cohesion is concerned, it is defined as "a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (Carron, Brawley, & Widmeyer, 1998, p. 213). Based on this definition, Carron et al. conceptualized cohesion to be reflected by 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).

According to Carron's (1982) conceptual framework, the outputs of cohesion can be viewed as the consequences of cohesion such as improved performance or adherence. For example, research has indicated that individuals who have stronger beliefs about the cohesiveness of their exercise class are more likely to attend on a regular basis (Carron, Widmeyer, & Brawley, 1988; Spink & Carron, 1992), are less likely to drop-out (Spink & Carron, 1994), are less likely to arrive late (Spink & Carron, 1992), intend to participate in the future (Spink, 1995; 1998), and are more satisfied when participating (Carron & Spink, 1993). Regardless of the positive outcomes outlined above, several questions remain unanswered.

To date, the majority of cohesion research has examined the cohesion-output relationship. However, inherent in the Carron (1982) conceptual framework is the notion that cohesion acts as a mediating variable. The importance of determining mediating variables cannot be overstated. As Baronawski, Anderson, and Carmack (1998) noted, the development of any intervention program should be based on mediational models. Although it seems logical to conduct tests of

mediation on Carron's framework, research to date has been sparse. However, Loughead and colleagues have recently conducted a series of studies to determine whether cohesion acted as a mediator between the input variable of leadership and selected exercise outcomes (e.g., Loughead & Carron, 2004; Loughead, Colman, & Carron, 2001; Loughead, Patterson, & Carron, 2004). Taken together, the results from these studies indicated that task cohesion served to mediate the relationship between fitness leader behaviours and four exercise-related outcomes: exerciser satisfaction, mood, attendance, and perceived exertion.

While the results from Loughead and colleagues were important in determining that exercise leaders influenced several exercise-related outcomes through the group's cohesiveness, there are several limitations to this body of research, one of which pertains to the cohesion-adherence relationship. Research examining the relationship between cohesion and adherence has repeatedly used a short-term measure of adherence, specifically, withdrawal from the current group (Spink, 1995). As Spink noted, participants who are dissatisfied with their current exercise experience may not withdraw and will continue to attend due to factors such as financial commitments and the desire to avoid the social stigma of quitting before the completion of the program. In other words, it is more socially acceptable to finish a current exercise program and then choose not to participate in following years. Therefore, an alternative measure of adherence is required that considers its temporal nature. One such measure is intention to participate in the future. That is, participants who have decided to terminate their membership in a group have a number of options available to accomplish their exit role transition. For example, they may choose to immediately discontinue their participation or they may delay their decision. Given that participation may discontinue following the current season, examination of adherence behaviour in the form of intention to participate in the future is required (Spink, 1998).

Another limitation of Loughead and colleagues work is that they examined solely the input variable of leadership. As highlighted in the Carron (1982) framework, there are other input variables that may influence cohesion and/or outcome variables. As noted earlier, another input variable is the antecedent of personal factors, where Carron (1982) suggested that motivation is an important variable that is hypothesized to influence cohesion. As Allen (2003) suggested, the social context is salient to participant motivation. For instance, participants have reported social reasons for engaging in physical activities such as affiliation to a group, being part of a team, and social status (McCullagh, Matzkanin, Shaw, & Maldonado, 1993).

One motivational theory that considers the importance of the social context is Deci and Ryan's (1985) self-determination theory (SDT). Central to SDT is that human behaviour is motivated by three fundamental psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 1985). According to Deci and Ryan, individuals are more likely to be motivated when they have the opportunity to freely choose the activity (i.e., autonomy), when they master the activity (i.e., competence), and when they feel connected and supported by important others (i.e., relatedness). Furthermore, Deci and Ryan (2000) have argued that there are different types of motivation and have suggested that motivation can be viewed along a continuum. The continuum is anchored by *amotivation* at the far left and *intrinsic motivation* at the far right. Specifically, if individuals are amotivated they lack any intention to act. On the other hand, if an individual is intrinsically motivated, they choose to participate for the fun and satisfaction derived from doing the activity (Deci, 1975). In the middle of the continuum, that is between amotivation and intrinsic motivation is *extrinsic motivation.* Deci and Ryan (1985) identified four types of extrinsic motivation (i.e., external regulation, introjected regulation, identified regulation, and integrated regulation) which take into account the different behaviours that occur

for the instrumental value of completing a task (e.g., money reward, trophy, praise, social recognition) as opposed to participating for the enjoyment of the activity.

To date, research examining the relationship between motivation and exercise has shown that more self-determined types of motivation (e.g., integrated regulation and intrinsic motivation) are associated with more positive physical activity outcomes. For example, Markland (1999) found that when intrinsic motivation was low, exercisers had lower levels of exercise enjoyment. Also, Ntoumanis (2002) found intrinsic motivation was related to more positive affective outcomes (e.g., effort, enjoyment, boredom) in school-aged children. Furthermore, Ryan, Frederick, Lepes, and Sheldon (1997) conducted two separate studies examining the relationship between participation motives and exercise adherence. Overall, the results indicated that the participation motives of competence, enjoyment, and satisfaction (i.e., intrinsic motivation) were predictive of greater attendance. In other words, when individuals were intrinsically motivated towards the activity, they were more likely to enjoy the activity, be satisfied with their involvement, and were motivated to maintain their participation. Similar results have also been documented in sport. For example, Pelletier, Fortier, Vallerand, and Brière (2001) found that athletes who displayed higher levels of self-determined type of motives (e.g., identified regulation, intrinsic motivation) were more likely to persist with the activity compared to athletes who were less self-determined (e.g., externally regulated).

Thus, the purpose of this study will be to determine whether cohesion serves as a mediator between motivation and intention to return to intramural sport. Based on the hypothesized relationships contained within Carron's (1982) framework and the findings of Loughead et al. (Loughead et al., 2001; Loughead et al., 2004; Loughead & Carron, 2004), it is predicted that motivation will contribute to the development of perceptions of cohesion and that

perceptions of cohesion, in turn, will contribute to future participation of intramural athletes. In other words, a mediation relationship will be expected between motivation, cohesion, and future participation. However, given the exploratory nature of the present study, no specific a priori predictions were made for each specific manifestation of cohesiveness, each specific manifestation of motivation, and with future participation.

Method

Participants

The participants were 162 intramural athletes (96 males and 66 females) from a large Canadian university participating in the following team sports: ice hockey (n = 11), ball hockey (n = 36), volleyball (n = 49), indoor soccer (n = 42), basketball (n = 17), and waterpolo (n = 7). The average age of the participants was 21 years (SD = 3.28). The intramural schedule permits the participants to compete once every ten days in one hour games, with the total length of the season consisting of approximately 10 weeks (with the exception of ice hockey in which one season includes both fall and winter semesters). Enrollment to participate in intramural activities is voluntary and involves a small fee for participation.

Measures

Cohesion. Cohesion was assessed using the Physical Activity Group Environment Questionnaire (PAGEQ; Estabrooks & Carron, 2000). The PAGEQ was derived from a conceptual model that considers cohesion as a multidimensional construct that includes task and social aspects that are reflected from both an individual and a group orientation. Thus, the PAGEQ is a 21-item inventory that assesses 4 dimensions of cohesion: individual attractions to the group-task (ATG-T; 6-items), individual attractions to the group-social (ATG-S; 6-items), group integration-task (GI-T; 5-items), and group integration-social (GI-S; 4-items).

The ATG-T scale assess the attractiveness of the group's task, productivity, and goals for the individual personally. A sample item is "I like the amount of physical activity I get in this program". The ATG-S scale, on the other hand, assess the attractiveness of the group as a social unit and the social interaction and friendship opportunities available for the individual personally. A sample item is "I enjoy my social interactions within this physical activity group". The GI-T scale measures the individual's perceptions of task unity within the group as a whole. A sample item is "Our group is in agreement about the program of physical activities that should be offered". Finally, the GI-S scale assesses the individual's perceptions of the social unity within the group as a whole. A sample item is "We spend time socializing with each other before or after our activity sessions". Responses are provided on a 9-point scale anchored at the extremes by "not at all" (1) and "very much so" (9). Average scale scores were calculated with higher scores reflecting stronger perceptions of cohesiveness. Research that has examined the psychometric properties of the PAGEQ has been discussed by several researchers (e.g., Estabrooks & Carron, 2000; Loughead et al., 2001). Overall, the research has provided evidence that the PAGEQ is internally consistent and demonstrates content and predictive validity.

Motivation. Motivation was measured using the Behavioural Regulation in Exercise Questionnaire-2 (BREQ-2; Markland & Tobin, 2004). The BREQ-2 is an extension of the behavioral regulation in exercise questionnaire (BREQ; Mullen et al., 1997). Thus, the BREQ-2 is a 19-item inventory developed to assess exercise regulations consistent with SDT. Specifically, five dimensions of motivation are assessed: amotivation (4-items), external regulation (4-items), introjected regulation (3-items), identified regulation (4-items), and intrinsic regulation (4-items).

A sample item assessing amotivation is "I don't see the point in exercising". A sample item assessing external regulation is "I exercise because other people say I should". A sample item assessing introjected regulation is "I feel guilty when I don't exercise". A sample item assessing identified regulation is "I value the benefits of exercise". Finally, a sample item assessing intrinsic regulation is "I enjoy my exercise sessions". Responses are provided on a 5-point scale anchored by "not true for me" (0), and "very true for me" (4). Average scale scores were used with higher scores reflecting stronger perceptions of motivation. Past research has indicated that the BREQ-2's multidimensional structure is valid across gender (Mullen, Markland, & Ingledew, 1997) and is able to discriminate between sedentary and physically active groups (Mullen & Markland, 1997).

Intention to return. Intention to return was assessed using a one-item statement. Specifically, the participants answered the following item, "How likely are you to return to playing intramural or recreational team sports next season"? This item was modified from Spink (1995) who assessed female ringette players' intention to return to the sport the following season. Responses are provided on a 5-point scale that included the following descriptors: "not at all likely" (at or 0% chance), "not likely" (25% chance or less), so-so (50% chance), "likely" (75% chance or better), and "very likely" (at or near 100% chance). The use of a single item to measure intention is consistent with recent theorizing (see Courneya & McAuley, 1993).

Procedures

The director of the Campus Recreation program was contacted to outline the nature of the study and asked permission to administer the inventories to the participants. Following approval from Campus Recreation, intramural team captains were contacted to ask permission to test their team. Once permission from team captains was obtained, participants were approached to secure

their permission to participate in the study. A description of the study was provided to the participants and signed informed consent was obtained. Once consent was obtained, participants completed the PAGEQ, BREQ-2, and intention to return inventories. The inventories were administered at the three-quarter point of the intramural season. The timing for questionnaire administration was based on cohesion being a group property, which takes time to develop. Participants completed the questionnaires either before or after their game and returned them to the researcher before leaving the sport venue.

Results

Descriptive Statistics

Internal consistency estimates were computed for the PAGEQ scales and the BREQ–2 scales. The Cronbach's alpha values for all scales were acceptable based on Nunally's (1978) recommendations. Insofar as cohesion is concerned, as measured by the PAGEQ, the alphas were as followed: individual attractions to the group-task (ATG-T; $\alpha = .85$), individual attractions to the group–social (ATG-S; $\alpha = .84$), group integration–task (GI-T; $\alpha = .80$), and group integration–social (GI-S; $\alpha = .84$). As for motivation, as measured by the BREQ-2, the alphas were as followed: external regulation, $\alpha = .82$; integrated regulation, $\alpha = .72$; identified regulation, $\alpha = .80$; intrinsic regulation, $\alpha = .86$; and amotivation, $\alpha = .78$.

A summary of the descriptive statistics is found in Table 1. As shown in Table 1, the score for the cohesion dimension of GI-S ($M = 6.9$ on a 9 point scale, $SD = 1.26$) was rated the highest, followed by ATG-S ($M = 6.7$, $SD = 1.41$), then ATG-T ($M = 6.3$, $SD = 1.42$) and GI-T ($M = 6.3$, $SD = 1.26$). In regards to the motivation scores, intrinsic motivation ($M = 3.22$ on a 5 point scale, $SD = .78$) was rated the highest, followed by identified regulation ($M = 3.05$, $SD =$

.84), then introjected regulation (M = 1.7, SD = 1.05), external regulation (M = .80, SD = .88) while amotivated behaviour (M = .45, SD = .69) was rated the lowest.

A summary of the bivariate correlations among the variables can be found in Table 2. It is apparent that positive significant relationships were found amongst the task cohesion measure of ATG-T with intrinsic motivation. In addition, there was a positive significant relationship between the task measure of GI-T and intrinsic motivation. As for amotivation, a significant negative relationship was observed with two cohesion measures (GI-S and GI-T). In regards to intention to return, significant positive relationships were found with three measures of cohesion (ATG-T, ATG-S, and GI-T) as well as with two dimensions of motivation (identified regulation and intrinsic motivation). Finally, a significant negative relationship was observed with intention to return and amotivation. The motivation, cohesion, and intention to return measures that were found to be significantly related were considered for analysis in testing for mediation.

Testing for Mediation

Baron and Kenny (1986) suggested that a series of regression models should be used to test for mediation. A variable functions as a mediator when it meets the following conditions.

Condition 1: The predictor variable (i.e., a manifestation of motivation) is significantly related to the mediator variable (i.e., a manifestation of cohesiveness).

Condition 2: The predictor variable is significantly related to the output variable (i.e., intention to return).

Condition 3: The mediator is significantly related to the outcome variable when regressed with the predictor variable.

Condition 4: Baron and Kenny also noted that if the preceding three conditions are present, the effect of the predictor variable (motivation) on the outcome variable (intention to

return) must be less pronounced when regressed with the mediator than when regressed without it. From a theoretical perspective, a reduction demonstrates that the mediator is indeed present.

Influence of intrinsic motivation and ATG-T on intention to return. Insofar as Baron and Kenny's (1986) condition 1 is concerned, intrinsic motivation was related to ATG-T, F (1,160) = 6.99, $p < .05$, ($\beta = .21$, $p < .05$). Insofar as Baron and Kenny's (1986) condition 2 is concerned, intrinsic motivation was related to intention to return, F (1, 160) = 6.30, $p < .05$, ($\beta = .20$, $p < .05$). As for Baron and Kenny's (1986) condition 3, intrinsic motivation and ATG-T on intention to return was significant (F (2, 159) = 8.57, $p < .05$). Inspection of the beta weights revealed that ATG-T was the most important predictor of intention to return ($\beta = .25$, $p < .05$) while intrinsic motivation was not a significant predictor of intention to return ($\beta = .14$, $p > .05$). The final condition was then considered. Specifically, the effect of intrinsic motivation was not as pronounced in condition 3 ($\beta = .14$, $p > .05$) as in condition 2 ($\beta = .20$, $p < .05$) suggesting that ATG-T served to mediate the relationship between intrinsic motivation and intention to return.

Influence of intrinsic motivation on GI-T and intention to return. Insofar as Baron and Kenny's (1986) condition 1 is concerned, intrinsic motivation was significantly related to GI-T, F (1,160) = 4.23, $p < .05$, ($\beta = .16$, $p < .05$). Insofar as Baron and Kenny's (1986) condition 2 is concerned, intrinsic motivation was significantly related to intention to return, F (1, 160) = 6.30, $p < .05$, ($\beta = .20$, $p < .05$). As for Baron and Kenny's (1986) condition 3, intrinsic motivation and GI-T on intention to return was significant (F (2, 159) = 5.83, $p < .05$). Inspection of the beta weights revealed that GI-T was the most important predictor of intention to return ($\beta = .18$, $p < .05$) followed by intrinsic motivation ($\beta = .17$, $p < .05$). The final condition was then considered. Specifically, the effect of intrinsic motivation was not as pronounced in condition 3

($\beta = .17, p < .05$) as in condition 2 ($\beta = .20, p < .05$) suggesting that GI-T served to mediate the relationship between intrinsic motivation and intention to return.

Discussion

The purpose of this study was to determine whether cohesion served as a mediator between motivation and intention to return to intramural recreation sport. The results indicated positive significant relationships with the two task dimensions of cohesion and intrinsic motivation. Specifically, ATG-T and GI-T were positively related to an individual's intrinsic motivation. In other words, participants who perceived that their team was united for task purposes were more intrinsically motivated to want to continue their participation next season. On the other hand, amotivated individuals were found to have low perceptions of cohesiveness. Specifically, GI-S and GI-T were negatively related to amotivation. As for the intention to return and cohesion relationship, significant positive relationships were found with ATG-T, ATG-S, and GI-T. Also, intention to return was significantly related to the motivation dimensions of identified regulation, and intrinsic motivation. It seems as though, individuals who are more intrinsically motivated to participate were more likely to continue their participation the following season. This finding is not surprising given the tenants of self-determination theory (SDT; Deci & Ryan, 1985), which state that individuals are more likely to be intrinsically motivated when they enjoy the activity and feel related (e.g., cohesion) to those who are also doing the activity. Finally, a significant negative relationship was observed for intention to return with individuals who were amotivated to participate. Again, this finding coincides with the tenants of SDT. That is according to SDT, individuals who are less motivated (i.e., amotivated) have not satisfied some or all of their three basic needs (i.e., autonomy,

relatedness, and competence). Given that these needs have not been satisfied, an individual is not as likely to adhere to an exercise program (Ryan & Deci, 2000).

Using Baron and Kenny's (1986) prescription, a series of regression models were used to test for mediation. In general, these analyses supported the conclusion that specific motivational orientations contributed to specific perceptions of cohesion in university intramural participants and, in turn, these perceptions of cohesiveness contributed to the participant's intention to return to intramural recreation sport the following year. Specifically, these analyses found two mediational relationships: (a) ATG-T served to mediate the relationship between intrinsic motivation and intention to return, and (b) GI-T served to mediate the relationship between intrinsic motivation and intention to return. Beyond these specific findings, a number of aspects associated with the results should be highlighted.

First, the results of the present study offer support for Carron's (1982) conceptual framework. Inherent in the Carron framework is that cohesion is viewed as a throughput between input and output variables; thus it is viewed as a mediating variable and is ideally suited for tests of mediation. However, only recently has the Carron framework been examined using tests of mediation. To date the majority of mediational research examining the role of cohesion has been conducted by Loughead and colleagues (e.g., Loughead et al., 2001; Loughead et al., 2004; Loughead & Carron, 2004). Overall, this body of research has shown that task cohesion, and in the majority of cases ATG-T, is a mediator between exercise leader behaviours and several exercise-related outcomes (i.e., adherence, perceived exertion, mood, exerciser satisfaction). The results of the present study expand Loughead and colleagues' previous research by indicating that not only is the input variable of leadership important but that the input variable of personal factors (operationalized as motivation in the present study) in the Carron

framework is also an important construct to consider when developing perceptions of cohesion. In fact, Ball and Carron (1976) found that both cohesion and motivation were important constructs in terms of influencing successful performance in ice hockey. Furthermore, Wankel (1993) viewed intrinsic motivation to be a key factor for exercise adherence. He believed that enjoyment of an activity would increase persistence with that activity while also reducing stress. Also, Wankel highlighted the importance of social interactions for adherence. In other words, he felt that positive social influences experienced with team sports were associated with increased satisfaction when participating. Furthermore, intrinsic motivation has been continuously associated with other exercise-related outcomes such as enjoyment and competence motives (Deci & Ryan, 1985; Pelletier, Fortier, Vallerand, et al., 1995; Reeve, & Deci, 1996). In line with the SDT, individuals who are competent and enjoy their activities are more self-determined, are motivated for intrinsic reasons and are more likely to adhere to an activity (Ryan & Deci, 2000). Similarly, Ryan and colleagues (1997) concluded that adherence behaviour was associated with motives such as social interaction. A consequence of social interactions is the development of perceptions of cohesiveness.

Second, and on a similar point to the first, the results also found that intention to return was an important output variable in the Carron (1982) framework. More specifically, the results of the present study found that task cohesion influenced an individual's decision to return to their intramural team the following season. This result expands previous cohesion research since a large part of this body of knowledge has examined its influence on the outcome of attendance (e.g., Carron et al., 1988; Loughead et al., 2001; Robinson & Carron, 1982; Spink & Carron, 1992)—a short term measure of adherence. However, the current results are encouraging since they showed that task cohesion is positively related to an individual's decision as to whether

he/she will continue exercising in the future—a longer term measure of adherence. The fact that task cohesion influences a person's intention to exercise in the future cannot be underestimated since Ajzen's (1991) Theory of Planned Behaviour suggests that intention is a strong predictor of actual behaviour. In fact, Spink (1995) has indicated that there is a strong relationship between an individual's intention to return and their actual return for the next season. Spink highlighted that, while intention to return to play might change with time, other factors (e.g., skill level, involvement of others) should remain reasonably constant. If this is true, then the intention-behaviour relationship would not be significantly impacted, which in turn would produce a strong relationship with intention to return and an individual's actual behaviour.

Third, although the results of the present study are similar to those of Loughead and colleagues (i.e., Loughead et al., 2001; Loughead et al., 2004; Loughead & Carron, 2004) in that task cohesion is as a mediator in exercise-based activities, the current study expands on those results suggesting that task cohesion is also a mediator in intramural-based physical activity programs. Thus, regardless of the type of activity (exercise vs. intramural), task cohesion plays a prominent role. Intuitively, one would think that social cohesion may be an important factor since these individuals come together on a weekly basis to exercise together in a recreational setting. However, while intramural sport is considered recreational in nature, the fact remains that competitiveness is present among participants. Participants in the current study have been chosen to participate on a team which has been placed in a specific league according to skill level. Depending on the specified sport, intramural teams are placed in an A, B, C, or D division. Division A being the strongest comprised of the most highly skilled players, while division D is composed of the lowest skill level and less experienced players. Regardless of skill level, the fact remains that teams in each division are ultimately competing for a championship

trophy which is awarded to the top team in each division at the end of the season. Specifically a season is comprised of 6 to 10 league games (depending on the sport) followed by a sudden death playoff in which all teams advance. Given the competitive structure of intramural sport, this may help to explain why task cohesion was found to be a significant mediator. In fact, Dion (1979) suggested four possible explanations as to why competition increases perceptions of cohesion. The first explanation suggests that competition provides a chance for individual's to secure extrinsic rewards such as trophies, social approval, and so on. The group to which the individual belongs to is perceived more favourably because it is used as the vehicle to which an individual can receive these extrinsic rewards. Second, competition allows individuals to achieve social approval such as trophies and monetary rewards, which ultimately is a positive result. A more cohesive group will be more likely to receive such extrinsic rewards resulting in a more committed group. The third explanation why competition increases perceptions of cohesion is the threat that competition poises to goal attainment, prestige, and self-evaluation. Groups will increase their closeness if group members are threatened from an outside source. The final explanation for the positive relationship between competition and cohesion is related to self-enhancement. Specifically, to protect and enhance self-esteem, group members will perceive the ingroup to be more advanced, compared to the outgroup.

Fourth, it was not surprising that ATG-T was a significant predictor of intention to return. Research has continuously found ATG-T to be the most consistently related dimension of cohesion to measures of adherence (cf. Estabrooks, 2000). For example, Carron et al. (1988) found that adherers to an exercise program had higher levels of ATG-T than nonadheres. Similarly, Carron and Spink (Carron & Spink, 1993; Spink & Carron, 1993) found that regardless of the condition (i.e., experimental or control), exercisers rated ATG-T as the most

salient dimension of cohesion. However, the results of the present study found that GI-T was also a predictor of intention to return. In order to explain this result, it is important to consider the developmental nature of a group. Specifically, Estabrooks (2000) proposed a model of group development for cohesion, suggesting that individuals initially participate in a group for task motivational reasons (i.e., ATG-T). However, once involved with the group, task interactions occur leading to the development of the group's integration around the task (i.e., GI-T). As the participant becomes more effective at the task and socializes with members of the group, social interactions increases in importance (i.e., ATG-S). Finally, as satisfying social interactions within the group is seen to increase, the group member become integrated around those interactions (i.e., GI-S). In relation to Estabrooks suggestion of group development in conjunction with the present findings, intramural sport teams typically have low turnover from year to year; thus team members generally know each other prior to starting their season. In fact, Landers, Wilkinson, Hatfield, & Barber (1982) found that recreational teams tended to recruit teammates on the basis of friendship. Also, it should be noted that once intramural teams have been formed, they generally stay the same for the duration on an individual's university career. As students enter the university setting, they become part of a group and with the exception of one or two group members; the team will generally remain constant and compete in a variety of intramural sports over the course of a four year period. Given the structure of intramural sport teams, it was not surprising that GI-T was found to be a significant correlate. The results from the present study provide preliminary support for the group development model. That is, with time, groups appear to place more importance with their social interactions. After group interaction around the task has been developed, group integrations around the social aspects of the group may follow. Future research testing this group development model seems warranted.

In regards to practical applications, the findings from the present study are promising. Specifically, campus recreation coordinators can use these results when organizing future intramural seasons. The current findings suggested that intrinsic motivation will promote higher perceptions of task cohesion and that when individuals feel highly task cohesive with their team, they are more likely to return the following season. Given these results, a number of suggestions can be made to help improve the return rate of intramural participants.

In order to improve the chance of future participation, task cohesion should be enhanced throughout the intramural season. To date, there is a large body of research in the area of team building that is used to enhance perceptions of cohesion. For example, Steven and Bloom (2003) suggested that team building significantly increases an individual's level of cohesion. In fact, Carron and Spink (1993) conducted a series of studies on team building and found that team building not only increases perceptions of cohesion but consequently impacts positively on adherence rates. Team building programs enable team members to increase and improve their relationships with team members, and ultimately bring teams closer together. According to these findings along with the results of the present study, intramural coordinators would enhance the adherence rates of their programs if they were to offer team building interventions at the start of each season. Allowing team captains to attend various team building clinics, providing teams opportunities to practice together, and/or promoting team outings are just a few examples that can be implemented into the regular intramural sport routine that will increase perceptions of cohesion.

Second, it is suggested that satisfaction and enjoyment lead to more internally motivated behaviours. If participants enjoy their participation, it is likely that they are intrinsically motivated to participate. However, if there is a lack of enjoyment, individuals will not look

forward to their match and therefore not be satisfied when competing. In this situation, it is not likely that the individual would return to play in future seasons. Therefore, coordinators must work to promote an enjoyable and satisfying experience. Making sure that scheduled games are running smoothly and on time, educating and preparing referee's to judge the match properly and fairly, and treating each participant in each sport equally are all examples of how intramural coordinators can help to promote an enjoyable intramural experience for all participants and improve the likelihood of their return the following season.

Although, the results of this study highlighted the importance of intrinsic motivation and task cohesion on an individual's intention to return, there are some limitations. For instance, the sample was drawn from one university and cannot be generalized to the general population. Also, intention to return was operationalized using a one-item inventory, thus reliability (i.e., internal consistency) of the instrument could not be evaluated. Although theory indicates a strong positive relationship between an individual's intentions and their actual behaviour, it is important to continue to improve current future participation measures where the instrument's internal consistency can be measured.

In summary, physical activity adherence rates have been problematic. The findings of the present study provide support for the notion that the task cohesion dimensions of ATG-T and GI-T mediated the relationship between intrinsic motivation and intention to return to intramural recreation. It is hoped that the results of the present study can help improve the current adherence rates. Specifically, individuals must be intrinsically motivated if they are to return to participate in future years. In order to do, perceptions of task cohesion must be enhanced. Individuals who feel that they are involved in a task cohesive group, have more internalized motives and are therefore more likely to return in following years. In addition, the results also

provided support for Carron's (1982) framework. Previous research showed that leadership was an important input variable and now the results of the current study have shown that intrinsic motivation is also an important variable in Carron's framework. Thus, future research should determine whether the environmental and group factors in the framework are important in terms of influencing cohesion. In addition, while motivation was found to be an important variable in regard to personal factors, there are other personal factor variables that could be also examined such as anxiety and social loafing.

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Table 1

Means and Standard Deviations of Cohesion, Motivation, and Intention to Return

Variable	Mean	SD
Cohesion[a]		
ATG-T	6.3	1.42
ATG-S	6.7	1.41
GI-S	6.9	1.51
GI-T	6.3	1.26
Motivation[b]		
EXTREG	.80	.88
INTROREG	1.7	1.05
IDREG	3.05	.84
INTRIN	3.22	.79
AMOT	.45	.75
Intention to Return[c]	4.6	.69

Note: ATG-T = individual attractions to the group-task; ATG-S = individual attractions to the group–social; GI-S = group integration-social; GI-T = group integration-task; EXTREG = external regulation; INTROREG = introjected regulation; IDREG = identified regulation; INTRIN = intrinsic motivation; AMOT = amotivation.

a. Assessed on a 9-point scale ranging from 1-9.

b. Assessed on a 5-point scale ranging from 0-4.

c. Assessed on a 5-point scale ranging from 1-5.

: 2

-Order Pearson Correlations Between Cohesion, Motivation, and Intention to Return

riable	1	2	3	4	5	6	7	8	9	10
'G-T	--	.692**	.356**	.661**	-.099	-.039	.061	.205**	-.073	.278**
'G-S		--	.599**	.696**	-.122	.050	.093	.123	-.100	.203**
·S			--	.549**	-.136	-.081	.043	.151	-.184*	.099
·T				--	-.061	.092	.110	.160*	-.158*	.203**
.TREG					--	.390**	-.131	-.314**	.489**	-.105
ΓROREG						--	.366**	.084	-.037	-.010
ΧEG							--	.751**	-.458**	.159*
ΓRIN								--	-.452**	.195*
ΛOT									--	-.076
Γ TO RET										--

Note: ATG-T = individual attractions to the group-task; ATG-S = individual attractions to the group–social; GI-S = group integration-social; GI-T = group integration-task. EXTREG = external regulation; INTROREG = introjected regulation; IDREG = identified regulation; INTRIN = intrinsic motivation; AMOT = amotivation; INT TO RET = intention to return.

* $p < .05$. ** $p < .01$.

Literature Review

This study was designed to examine the influence of cohesion and motivation on an individual's intention to return to recreational sport programs the following season. More specifically, the purpose of the present study was to determine whether cohesion served as a mediator between motivation and intention to return. Consequently, the review of literature will be divided into two parts: (a) cohesion and (b) motivation.

Cohesion

This section of the thesis will review the literature pertaining to cohesion in physical activity. First, the construct of cohesion will be defined. Second, a conceptual model of cohesion will be presented. Third, the measurement of cohesion will be presented. Fourth, Carron's (1982) conceptual framework for the study of cohesion will be explained. Fifth, previous cohesion research in sport and exercise will be reviewed. The final section will discuss cohesion as a mediating variable.

Defining Cohesion

Over the last five decades, cohesion has been defined in several ways. Festinger, Schachter, and Back (1950) were among the first to define cohesion as "the total field of forces that act on members to remain in the group" (p.164). Furthermore, Festinger et al. specified two sources that contributed to group cohesiveness: attractiveness of the group which included social and affiliative aspects of the group, and means control, which represented the task, performance, and productive concerns of the group (Cota, Evans, Dion, Kilik, & Longman, 1995). However, by simply focusing on attraction to the group, several other types of forces—those keeping individuals from leaving a group along with the forces which pulled members to alternative groups—were ignored. In addition, it was noted that the Festinger et al. definition was difficult

to operationalize because cohesion was being treated simply as the attraction of the group for its members. Thus, the focus was solely on the individual and ignored the influence of the group on the individual. In fact, Gross and Martin (1952) criticized the Festinger et al. definition since it did not consider the group as a totality. Instead, Gross and Martin operationalized the construct from the perspective of what keeps groups together and defined cohesion as "the resistance of a group to disruptive forces" (p. 553). It should be noted that both the Festinger et al. and the Gross and Martin definitions conceptualized cohesion as a unidimensional construct. However, operationalization that measured cohesion as a unidimensional construct were found to be problematic. Specifically, unidimensional models of cohesion were problematic since they had limited generalizability to other types of groups (Cota et al., 1995). Furthermore, narrow conceptualizations of cohesion hindered the integration of empirical findings (Mudrack, 1989). Therefore, a conceptualization and definition that reflected the multidimensional nature of cohesion was required.

The first to examine cohesion as a multidimensional construct was Yukelson, Weinberg, and Jackson (1984) who believed that cohesion in sport teams reflected "factors associated with the goals and objectives the group is striving to achieve, as well as factors associated with the development and maintenance of positive interpersonal relationships" (p. 106). Yukelson and colleagues utilized a data-driven approach to develop a sport cohesion inventory (i.e., Multidimensional Sport Cohesion Inventory). A pool of items was generated from existing cohesion inventories, earlier operational definitions of cohesion (e.g., Festinger et al., 1950; Gross & Martin, 1952), research in organizational and industrial psychology, and interviews with sport scientists and coaches. Following factor analysis, four scales were derived. The first scale was labeled *quality of teamwork* which measured how well teammates worked together to

achieve group success. The second scale, labeled *attraction to the group*, represented the degree to which individuals are attracted to and satisfied with group membership. The third scale, labeled *unity of purpose reflecting strategies* was composed of items that assessed commitment to the group's norms, rules, and goals. The final scale, labeled *valued roles,* assessed the degree to which there was identification with group membership. Although Yukelson et al.'s work represented a valuable contribution to the measurement of cohesion, there was a shortcoming in their instrument. Since Yukelson et al. used a data-driven approach in the development of their inventory, they relied heavily on past instruments as a source for items and therefore carried the same limitations as previous measures.

In order to overcome some of the shortcomings in regard to the measurement of cohesion, Carron, Widmeyer, and Brawley (1985) advocated the development of a new conceptual framework (and definition of cohesion). They reasoned that instead of using patchwork methods to repair existing measures (e.g., Multidimensional Sport Cohesion Inventory), or developing a new measure with similar problems, it was essential to go to the root of the measurement problem—the lack of a clear conceptualization. In fact, Carron (1982) defined cohesion as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (p. 124). The original Carron definition was revised by Carron, Brawley, and Widmeyer (1998) to include an affective component. As a result, Carron and colleagues defined cohesion as "a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (p. 213). The Carron et al. (1998) definition highlighted four characteristics of cohesion. The first characteristic was the multidimensional nature of cohesion. That is to say, different factors cause

groups to stick together which may not be salient to all groups; what causes one particular group to stick together may not be present in another similar type of group. For example, a football team may be high in social unity (e.g., team members like each other), however may not be united about how to achieve its task objectives (e.g., some team members may be more concerned about achieving individual goals instead of team goals). The second characteristic reflects cohesion's dynamic nature. That is, cohesion can change over time so that factors contributing to the group's cohesiveness at one stage of the group's development may not be salient at another stage of the group's development. For example, a softball team may demonstrate high levels of task cohesion over the course of a season because all team members are brought together to complete a specified task; however, during the off-season social cohesion may be more salient to the team at that moment in time. The third characteristic of cohesion highlights its instrumental nature. This refers to the fact that all groups form to serve a specific purpose. The final characteristic of cohesion is its affective dimension. Carron and Brawley (2000) noted that bonding, whether it is for task or social reasons, is satisfying to all members of a group.

Conceptual Model of Cohesion

Using the Carron (1982) definition as a basis, Carron et al. (1985) developed a conceptual model that has formed the basis for the majority of research on cohesion in sport and exercise. The model was based on the premise that both individual and group aspects of cohesion were represented. The model suggests that each group member integrates information from various aspects of the social world that is relevant and meaningful to the group, generating a variety of perceptions or beliefs about the group. The first category is labeled *group integration,* which reflected an individual's thoughts on what the group believed about its closeness, similarity, and

bonding as a whole. The second category is labeled *individual attractions to the group* which reflected how individuals became part of a group in order to satisfy their individual needs to remain in the group and their personal feelings about the group. Each of these two categories is further divided into task (i.e., collective performance, goals, and objectives) and social (i.e., relationships within the group) dimensions. Therefore, the conceptual model contains four dimensions concerning the beliefs and perceptions involved with the dynamic process of characterizing both a group's and individual's cohesiveness around task and social aspects. The four dimensions of cohesion are: (a) *individual attractions to the group-task* (ATG-T), viewed as the attractiveness of the group's task, productivity, and goals for the individual personally; (b) *individual attractions to the group-social* (ATG-S), individual member's perception about his/her personal acceptance and social interaction with the group; (c) *group integration-task* (GI-T), individual member's perceptions about the similarity, closeness, and bonding within the group as a totality around the task; and (d) *group integration-social* (GI-S), individual member's perceptions about the similarity, closeness, and bonding within the group as a totality around social concerns (Carron et al., 1998).

Measurement of Cohesion

Using the Carron et al. (1985) conceptual model as a basis, Carron et al. then developed the Group Environment Questionnaire (GEQ) to measure cohesiveness. The GEQ is an 18-item inventory that assesses cohesion along four dimensions (i.e., ATG-T, ATG-S, GI-T, and GI-S). The GEQ was originally designed to measure cohesion in sport teams, however, Spink and Carron (1994) modified the original GEQ for use in the exercise context. The exercise version of the GEQ also contained 18 items that were modified to reflect the fact that participants were providing their perceptions of cohesion in the exercise environment. In the original GEQ, an

example ATG-T item was: "This team does not provide me enough opportunities to improve my personal performance". The modified exercise version of this item was: "This exercise group does not give me enough opportunities to improve my personal fitness". An example item of ATG-S was modified from "Some of my best friends are on this team" to "Some of my good friends are in this physical activity group". An example item for GI-S was modified from "Our team would like to spend time together in the off season" to "Members of our physical activity group would likely spend time together if the program were to end". Finally, an example item for GI-T was modified from "Our team is united in trying to reach its goals for performance" to "Members of our group have similar interests regarding the program of physical activity". Although the exercise version of the GEQ has been used to assess cohesion in the exercise context (e.g., Carron et al.1988; Spink & Carron, 1994), Estabrooks and Carron (1999) suggested that many of the items were not specific to the exercise task (i.e., losing weight or improving physical fitness) and the social outcomes (i.e., getting together with a group of friends) that were specifically associated with the exercise environment. Also, the modified exercise version of the GEQ contained a number of negatively worded items, which resulted in confusion when completing the inventory with adult populations (Estabrooks & Carron, 1999). That is, with negatively worded items, perceptions of cohesion should be manifested in a stronger level of disagreement with the statement; however, participants noted that the negatively worded items were hard to interpret and they were uncomfortable when considering the group negatively (Estabrooks & Carron, 2000). Finally, the modified exercise version of the GEQ suffered from a few psychometric problems. In particular, internal consistency values for specific scales (i.e.., ATG-T & ATG-S) have been reported under .70 (e.g., Estabrooks & Carron, 1999) whereas

some samples (Estabrooks & Carron, 1999, Study 2) have been unusable with internal consistency values of less then .60.

In an attempt to overcome the above mentioned shortcomings, Estabrooks and Carron (2000) developed the *Physical Activity Group Environment Questionnaire* (PAGEQ), a measure of cohesion specifically designed for exercise/physical activity groups. The PAGEQ is a 21-item inventory that assesses four manifestations of cohesion: *individual attractions to group-task* (ATG-T; 6 items), i*ndividual attractions to group-social* (ATG-S; 6 items), *group integration-task* (GI-T; 5 items), and g*roup integration-social* (GI-S; 4-items). Responses are assessed on a 9-point scale anchored at the extremes by "not at all" (1) and "very much so" (9) with higher scores representing stronger perceptions of cohesiveness. The ATG-T scale assesses the attractiveness of the groups' task, productivity, and goals for the individual personally. A sample item is "I like the amount of physical activity I get in this program". The ATG-S scale assesses the attractiveness of the group as a social unit and the social interaction and friendship opportunities available for the individual personally. A sample item is "The social interactions I have in this physical activity group are important to me". The GI-T scale is a measure of the individual's perceptions of task unity within the physical activity group as a whole. A sample item is "Members of our group are satisfied with the intensity of physical activity in this program". The GI-S scale assesses the individual's perceptions of the social unity within the group as a whole. A sample item is "Members of our physical activity group would likely spend time together if the program was to end".

The development of the PAGEQ consisted of initially providing a list of 55 items to two experts in the field of group dynamics to assess content validity. The protocol to assess content validity included four steps. First, items were deleted if they did not reflect the dimensions of

cohesion targeted. Second, any ambiguous items were removed. Third, all duplicate and complex items were removed, and fourth, complete agreement between both experts was required. The above protocol resulted in the removal of 20 items from the original pool (Estabrooks & Carron, 2000, Study 2). Concurrent validity was tested using college-aged participants who were given both the modified for exercise version of the GEQ and the PAGEQ. Responses on the four dimensions of cohesion were positively related (Estabrooks & Carron, 2000, Study 4). The reliability of an instrument can be measured by its stability over time and the internal consistency of its items. However, since cohesion is considered to be dynamic, the most appropriate test of reliability is the calculation of the scale's internal consistency (Carron et al., 1998). For the PAGEQ, all internal consistency values were deemed acceptable following Nunally's (1978) guidelines (ATG-T, α = .91; ATG-S, α = .87; GI-T, α = .72; and GI-S, α = .85). Following the work conducted by Estabrooks and Carron, it was concluded that the PAGEQ was a reliable measure of exercise class cohesion.

Conceptual Framework for the Study of Cohesion

In order to systematically study cohesion and its correlates, Carron (1982) developed a linear model consisting of inputs, throughputs, and outputs (see Figure 1). The inputs comprise the antecedents that influence cohesion, which are classified into four categories: *environmental, personal, leadership,* and *group*. First, *environmental factors* are viewed as the organizational orientation contributing to the degree of task and social cohesiveness within a group and are represented by such things as group goals, strategies, age, and gender. The next component influencing the cohesiveness of a group is *personal factors.* Although it is difficult to outline a complete list of personal factors, Carron noted that individual group members can be oriented in three directions, (a) toward the completion of the group's task (e.g., task motivation),

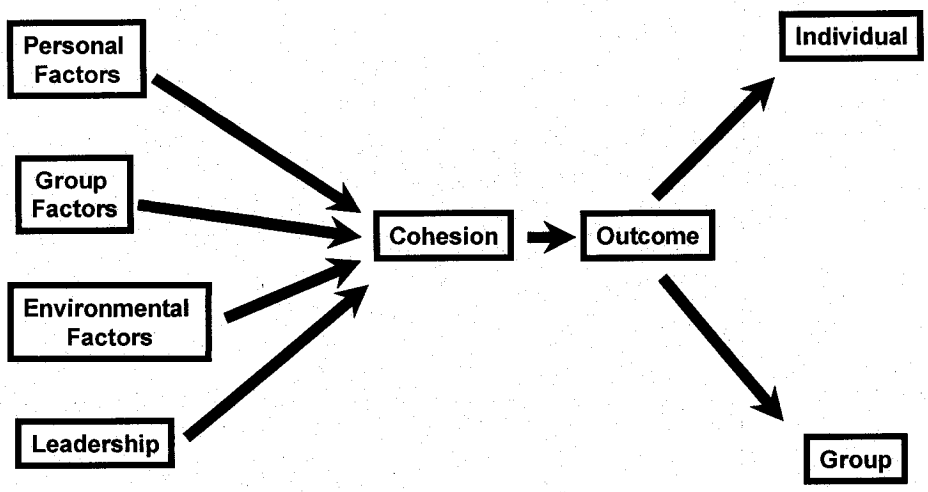

Figure 1. Carron's (1982) conceptual framework for cohesiveness in groups.

(b) toward the establishment and maintenance of happy, harmonious relationships within the group (e.g., affiliation motivation), and (c) toward the achievement of direct, personal rewards of satisfactions from the group and its activities (e.g., self motivation, anxiety, and social loafing). The third factor influencing the development of cohesion in a group is *leadership.* Schriesheim (1980) suggested that leader behavior and leadership style are two factors that influence group cohesiveness. The fourth component of factors influencing group cohesiveness is the *group factor* which includes aspects such as group task, group success, group orientation, group productivity norm, group ability, and group stability. Central to this framework is that each factor (i.e., environmental, personal, leadership, and group) influences the throughput of cohesion. The throughput is viewed as the different manifestations of cohesion (i.e., ATG-T, ATG-S, GI-T, & GI-S). The outputs of cohesion are defined as the major consequences of cohesive groups such as improved performance, satisfaction, and adherence.

Correlates of Cohesion

Since the development of the conceptual model of cohesion and the GEQ/PAGEQ, research has examined the antecedents and consequences of cohesion. While the current study examined the personal factor of motivation, it should be noted that no research to date has investigated this variable in relation to cohesion. Nonetheless, using Carron's (1982) conceptual model as an organizational guide, the first part of the following section will summarize selected portions of research that has examined the antecedents of cohesion (i.e., environmental, personal, leadership, and group factors). The second part of this section will summarize the consequences of cohesion.

Environmental factors

There has been very little research examining the environmental factor of Carron's (1982) framework. However, one environmental variable that has been examined is group size. Widmeyer, Brawley, and Carron (1990) examined the relationship between cohesion and group size by examining varying roster sizes in a 3-on-3 recreational basketball tournament. Teams consisted of either three, six, or nine members. In general, the results showed that as team size increased, task cohesion decreased (i.e., ATG-T, GI-T). That is, teams composed of three members were found to be the most task cohesive and teams composed of nine members were the least task cohesive. On the other hand, six member teams were found to be the most socially cohesive (i.e., ATG-S, GI-S) when compared to the other two group sizes. Lower participation levels and less individualized attention may contribute to a decrease in task cohesion demonstrated with the larger groups. It appears that teams with smaller numbers had an easier time developing commitment and consensus around common group goals and objectives but lacked opportunities to develop social cohesion (Widmeyer et al., 1990).

The relationship between group size and cohesion has also been examined in exercise. Overall, three studies conducted by Spink and Carron (1995) found that both task and social cohesion were higher in smaller sized exercise classes. The first study compared the perceptions of group cohesiveness for members of small exercise classes to members of large exercise classes. Small exercise classes were operationalized as those having less than 20 participants, whereas large exercise classes were operationalized as having more than 40 participants. The results indicated that participants in small groups held higher perceptions of their group's cohesiveness in terms of GI-T, and GI-S. A second study examined whether perceptions of group cohesiveness assessed early in the development of the group (i.e., at the beginning of the

exercise program) would be influenced by group size. Using the same operationalization of group size as above, the results indicated a significant difference between small and large exercise groups in three of the four manifestations of cohesion: ATG-T, GI-T, and GI-S. Although, the results showed a relationship between cohesion and group size, these two studies were cross-sectional in nature. Consequently, using a longitudinal design, a third study by Spink and Carron examined the changes in cohesion over the course of a 12-week exercise program of members in different sized classes. The results indicated that individuals in smaller exercise classes had higher perceptions of both task (GI-T) and social (GI-S) cohesion. Taken together, the results of these three studies showed that smaller sized groups held significantly greater perceptions of their group's cohesiveness than did participants in larger groups.

Personal factors

Similar to the environmental factor, very little research has examined personal factors. The few studies that have been conducted have focused on athlete anxiety (e.g., Eys, Hardy, Carron, & Beauchamp, 2003; Prapavessis and Carron, 1996). Prapavessis and Carron examined the relationship between cohesion and competitive state anxiety in 110 competitive level athletes from a variety of sports (e.g., ice hockey, soccer, rugby, basketball). Athletes completed the GEQ at a midweek practice and then assessed the intensity of cognitive anxiety, somatic anxiety, and self-confidence fifteen minutes prior to competition. The results indicated that athletes who expressed higher task cohesion (i.e., ATG-T) had lower levels of precompetition cognitive anxiety.

Although the results from Prapavessis and Carron (1996) highlighted the relationship between cohesion and anxiety, state anxiety researchers (e.g., Jones & Swain, 1992; Jones, Swain, & Hardy, 1993) have suggested that previous measures of precompetition anxiety tapped

only the *intensity* of symptoms and not the *direction* or *interpretation* the individual attaches to those symptoms. As a result, Jones and Hanton (2001) have classified an individual's interpretation of anxiety symptoms as debilitative or facilitative for performance. Consequently, Eys et al. (2003) extended the work of Prapavessis and Carron by investigating the relationship between cohesion and the interpretation that athletes attach to precompetitive cognitive and somatic anxiety symptoms. Participants included 392 athletes from the sports of soccer, rugby, and field hockey. Using the same protocol as Prapavessis and Carron, athletes completed the GEQ after a practice session and completed the anxiety inventory just prior to competition. The results demonstrated that athletes who perceived their cognitive anxiety symptoms as facilitative had higher perceptions of task cohesion (i.e., ATG-T, GI-T) than athletes who perceived their cognitive anxiety symptoms as debilitative.

Leadership factors

Leadership has been viewed by many to be a crucial factor in the success of any organization (Loughead, Colman, & Carron, 2001). One of the few studies to examine the relationship between cohesion (using the GEQ) and leader behaviour was by Westre and Weiss (1991). Using male high school football players, Westre and Weiss found that players who perceived their coaches to engage in higher levels of the leader behaviours of training and instruction, democratic behaviour, social support, and positive feedback perceived their team to have higher levels of task cohesion (ATG-T, GI-T). Due to an unacceptably low reliability score on the autocratic behaviour scale, the relationship between task cohesion and this scale could not be tested. Along the same lines, low reliability scores (alpha < .70) on the social cohesion scales precluded testing the relationship between social cohesion and leader behaviours.

Gardner, Shields, Bredemeier, and Bostrom (1996) also examined the relationship between leader behaviour and cohesion. The results showed that the coaching behaviours of training and instruction, democratic behaviour, social support, and positive feedback were positively related to task cohesion (ATG-T, GI-T). On the other hand, the coaching dimension of autocratic behaviour was negatively related to task cohesion. However, unlike Westre and Weiss (1991) the reliability scores on the social cohesion scales were acceptable, thus allowing for the relationship between coaching behaviours and social cohesion to be examined. The results revealed that the coaching behaviours of training and instruction, and social support were positively related to social cohesion.

Group Factors

Similar to the other factors (e.g., environmental, personal, leadership), very little research has examine group factors in relation to cohesion. However, one group factor that has been examined is group norms. Norms reflect the "standards for behaviour that are expected of group members" (Carron & Hausenblas, 1998, p. 173). Shields, Bredemeier, Gardner, and Bostrom (1995) examined the relationship between cohesion and team norms about cheating and aggression. The participants were 182 high school and varsity baseball and softball players. The results showed that task cohesion (ATG-T, GI-T) was positively related to expectations that peers would cheat and exhibit aggressive behaviours if it helped the team win a game. The authors suggested that task cohesion may facilitate cheating and aggression by establishing a shared set of team priorities focused only on obtaining victory. Gammage, Carron, and Estabrooks (2001) also examined the influence of team norms on cohesion in sport. Participants were 324 undergraduate university students asked to respond to different scenarios that were associated with the athletes training in the off-season. In the scenarios, information pertaining to

cohesion and the norm for productivity was systematically manipulated to produce extreme conditions. The results indicated that higher task cohesion and team productivity norms resulted in a greater probability of off-season training. Using actual sport teams, Patterson, Carron, and Loughead (in press) examined the influence of team norms on the cohesion-performance relationship. The participants were 298 athletes from both university and club level sport teams. The results showed athletes who possessed a strong norm for social interactions exhibited greater levels of social cohesion (i.e., GI-S) and effort.

Cohesion—Adherence Relationship

Although no single manifestation of cohesion has been consistently associated with exercise adherence, the research does indicate a strong relationship between cohesion and several measures of adherence (e.g., attendance, drop-out, withdrawal). Enhanced perceptions of cohesion have resulted in increased exercise adherence for fitness class participants, recreational sport participants, and elite sport participants. Attendance, withdrawal, drop-out, and more recently intention to return have been used to operationalize exercise adherence.

Attendance has been the most widely used measure of exercise adherence. In their recent meta-analysis, Carron, Hausenblas, and Mack (1996) reported that having others present while being physically active (i.e., versus engaging in activity alone) has a small to moderate effect on adherence, operationalized as attendance (*ES* = .32). Further, being in a highly task cohesive class setting (versus a class setting with lower task cohesiveness) had a moderate to large effect on attendance (*ES* = .62). As well, being in a highly social cohesive class setting (versus a class setting with lower social cohesiveness) had a small effect on adherence (*ES* = .25). It should be noted that the cohesion-attendance research summarized in the Carron et al. meta-analysis was undertaken with college-age students only. More recently, Loughead et al. (2001) found a

positive relationship between attendance and three dimensions of cohesion (ATG-T, r = .28; GI-T, r = .28; GI-S, r = .28) in older adult exercisers.

Recently, Fraser and Spink (2002) examined the relationship between cohesion and exercise compliance, operationalized as attendance. The participants were 49 females attending a group rehabilitation exercise class as prescribed by a health-care professional. The participants completed an exercise version of the GEQ after four weeks of participating in the program. Based on their mean proportion of attendance, participants were divided into one of two groups for data-analysis: high or low attendance. Those placed in the high attendance group attended more than 77% of the classes; whereas those who were placed in the low attendance group attended less than 60% of the classes. The results showed that high attendees endorsed the cohesion dimension of ATG-T. Using another measure of attendance, Carron, Widmeyer and Brawley (1988) examined the relationship between cohesion and absenteeism/lateness in recreation sport. The participants were 212 adult males and females who competed in various summer recreational leagues (i.e., softball, soccer, baseball, & basketball). The GEQ was distributed in order to assess cohesion while absenteeism and lateness was recorded using a master data sheet. The results indicated that participants who perceived their team to have lower GI-S were those who exhibited greater absenteeism/lateness where as the participants who felt that their teams showed greater social cohesiveness (i.e., GI-S) were not absent/late. In addition, Spink and Carron (1992) hypothesized that exercisers who exhibited greater adherence behaviour would score higher on ATG-T and ATG-S. Using absenteeism and lateness as measures of adherence, results partially supported their hypothesis. The results indicated that participants who were almost never absent or late held greater perceptions of cohesiveness. Specifically, the cohesion dimensions of ATG-T and ATG-S were predictors of absenteeism;

whereas ATG-T was the sole predictor of lateness. Using drop-out behavior as a measure of adherence, Carron, Widmeyer, and Brawley (1988) compared former members of fitness classes (i.e., YMCA, university and community exercise programs) and varsity sport team athletes (n = 67) who left their groups voluntarily before the completion of the program or season versus those individuals who remained actively involved with their group for the duration of the program/season (n = 222). The results indicated that for athletes, adherers were more attracted to the group's task (ATG-T) and perceived the group as more integrated around social and task dimensions (GI-S, GI-T) compared to nonadherers.. As for those involved in the fitness classes, two cohesion variables significantly discriminated the fitness class adherers and nonadherers: ATG-T and ATG-S. Taken together, the results indicated a consistent cohesion-adherence relationship for both athletes and fitness class participants. Research examining the relationship between cohesion and adherence has almost exclusively used a short-term measure of adherence (e.g., attendance, drop-out) from the current group (Spink, 1995). However, this begs the question whether cohesion is related to future participation (i.e., intention to return). Spink (1995) noted financial commitments, parental pressures, or a desire to avoid the social stigma of quitting during the program/season as factors that may cause individuals to remain in their current group. Individuals may simply participate until the season or program is finished and then choose to discontinue their involvement the following season or the next time the program is offered. It is more socially acceptable to finish the current program/season and then choose not to participate in following years. Spink (1995, Study 1) compared perceptions of cohesion of recreational ringette players who indicated that they would return to play next season to those who indicated they would not return. The results showed that recreational ringette players who were more attracted to the team as a social unit (ATG-S), were more apt to return the following

season. In a similar study using competitive ringette players, Spink (1995, Study 2) found two of the four manifestations of cohesion differentiated between those who were likely to return next season to those who were likely to discontinue their participation after the season. Specifically, GI-S and ATG-S were higher for players who planned on returning to their team the following season.

Taken together, there is considerable evidence to support the conclusion that adherence is better sustained if the activity is carried out in the company of others, and the stronger the task and social bond among individual exercisers and athletes, the greater the likelihood of adherence. However, the majority of research has used short term measure of adherence (e.g., attendance, drop-out). Recently, Spink (1995) suggested that a long term measure of adherence is an individual's intention to participate in the future once their current program has ended.

Cohesion as a Mediator

To date the majority of cohesion research has examined separately the antecedents and outcomes of cohesion in relation to cohesion. That is, the research has examined separately the antecedent-cohesion relationship or the cohesion-outcome relationship. However, inherent in the Carron (1982) framework is that cohesion acts as a mediator between the antecedents and outcomes. The lack of mediational research is somewhat unfortunate since Baronawski, Anderson, and Carmack (1998) noted that the development of any intervention program (e.g., team building) should be based on mediational models. In fact, only recently have researchers conducted tests of mediation on Carron's framework. In particular, research by Loughead and colleagues (Loughead & Carron, 2004; Loughead, Colman, & Carron, 2001; Loughead, Patterson, & Carron, 2004) in the exercise domain has shown that cohesion is a mediator between leadership and several exercise-related outcomes (e.g., adherence, perceived exertion,

mood, satisfaction). Although the results have shown cohesion to be a mediator, the research have focused exclusively on the antecedent of leadership. As mentioned earlier, there are other antecedents contained in the Carron framework—one of them is the personal factor of motivation.

Motivation

This section of the thesis will review the literature examining the influence of motivation on physical activity. First, the construct of motivation will be defined. Second, self-determination theory will be presented. Third, different types of motivation such as intrinsic and extrinsic motivation will be explained. The fourth section will discuss the social factors influencing motivation. The final section will examine the consequences of motivation.

Definition of Motivation

Motivation can be defined as "the hypothetical construct used to describe the internal and/or external forces that produce the initiation, direction, intensity and persistence of behaviour" (Vallerand & Thill, 1993, p. 4). Furthermore, three perspectives have been advanced in order to understand an individual's motivation (Weinberg & Gould, 2003). The first perspective is labeled *trait-centered view*, which posits that an individual's behaviour is a function of personal characteristics such as personality, needs, and goals. The second perspective, *situation-centered view* contends that an individual's motivation is determined by the nature of the situation. For instance, an individual might be extremely motivated to play intramural hockey but will be unmotivated to participate in an aerobics class. The third and most accepted perspective of motivation suggests that motivation be viewed as a continuous interaction between an individual and his/her environment (Gould, Feltz, & Weiss, 1985). That is, reasons for participating in physical activity are best explored using an *interactional*

perspective which considers simultaneously both personal and situational factors. Consequently, the interactional perspective supports Lewin's (1935) notion that human behaviour is a product of both individual and environmental factors. One theory that considers not only individual influences but also highlights the importance of environmental conditions that foster motivation is self-determination theory (SDT).

Self-Determination Theory

Self-determination theory (SDT) considers the perceived forces that move individuals to behave in certain ways. Specifically, SDT identifies several types of motivation, each of which have specifiable consequences for learning, performance, personal experience, and well-being (Ryan & Deci, 2000). It is beneficial to understand the motivational processes that determine whether individuals will regard exercise as valuable, enjoyable, and rewarding. "Most contemporary theories of motivation [e.g., self-determination theory] assume that people initiate and persist at behaviours to the extent that they believe the behaviours will lead to desired outcomes or goals" (Deci & Ryan, 2000, p. 227). Central to self-determination theory is that human behaviour is motivated by three fundamental psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 1985). According to Deci and Ryan (2000) these three needs are psychological mediators which influence motivation and can be defined as "innate, organismic necessities that are essential for ongoing psychological growth, integrity, and well being" (p. 229). That is, individuals are more likely to be motivated when they have the opportunity to freely choose the activity (i.e., autonomy), when they master the activity (i.e., competence), and when they feel connected and supported by important others (i.e., relatedness) (Gagne, 2003). Competence involves the need to feel that one can reliably produce a desired outcome and/or avoid a negative outcome (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). In

order to feel competent, individuals must believe they are capable of successfully completing the required task.

Simply feeling competent is not enough to promote motivation (Markland, 1999; Markland & Hardy, 1997). Autonomy deals with helping individuals feel that they have a choice when completing a task. Several studies have shown a positive relationship between perceptions of autonomy and an individual's ability to persist and perform a required task (cf. Deci & Ryan, 2000).

The third need contained within self-determination theory is relatedness, which involves the desire to feel close to others and emotionally secure in a relationship (Pelletier, Fortier, Vallerand, & Briere, 2001). As Baumeister and Leary (1995) pointed out, a human fundamental need is to belong and an individual's belongingness status will influence his/her motivations. In fact, Hill (1987) noted that the motivation for social interaction can be viewed as a central influence on human behaviour.

Types of Motivation

Although many theorists have described motivation as a unidimensional construct, Deci and Ryan (2000) have argued there are different types of motivation and have suggested that motivation can be viewed along a continuum (see Figure 2). At the far left of the continuum is *amotivation*. When an individual is amotivated, he/she lacks any intention to act—he/she is simply going through the motions. People who are amotivated do not value the activity (Deci & Ryan, 1985), they do not feel competent to complete the activity (Deci, 1975), and they do not believe that completing the task will result in a desired outcome (Deci & Ryan, 2000).

To the far right of the continuum is *intrinsic motivation*. Generally speaking, individuals who are intrinsically motivated choose to participate strictly for the satisfaction derived from

doing the activity (Deci, 1975). Individuals who are intrinsically motivated value fun and sociability components of participation as the basis for involvement in physical activity. The most natural form of intrinsic motivation is when young children are at play. In this situation, external rewards (e.g., trophies) do not affect the children's ability to perform the desired behaviour (Deci & Ryan, 1985). In the sport and exercise settings, athletes who attend practice

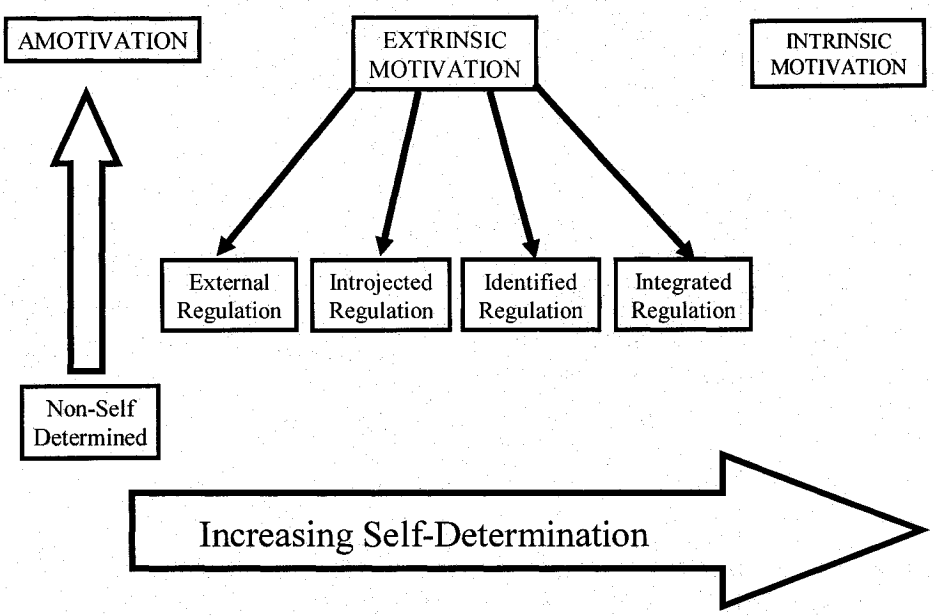

Figure 2. Self-determination continuum showing the different types of motivation.

solely for the enjoyment that they experience when playing a particular physical activity are internally motivated to practice. In the above examples, it is the natural rewards of the task (e.g., enjoyment, satisfaction) that are the motivating forces working to encourage individuals to perform the behaviour.

In the middle of the continuum, that is, between amotivation and intrinsic motivation, is *extrinsic motivation*. By definition, extrinsic motivation is the motivation that comes from an external source (Cox, 2002). Therefore, extrinsic motivation takes into account the different behaviours that occur for the instrumental value of completing a task (e.g., money reward, trophy, praise, social recognition) as opposed to participating for the enjoyment of the activity (Deci & Ryan, 1985). According to SDT, extrinsic motivation can vary greatly in its relative autonomy (Ryan & Connell, 1989; Vallerand, 1997) resulting in a multidimensional perspective of extrinsic motivation (Deci & Ryan, 1985). In fact, Deci and Ryan (1991) identified four types of extrinsic motivation: external regulation, introjected regulation, identified regulation, and integrated regulation. *External regulation* represents the least self-determined form of extrinsic motivation and can be explained as behaviours that are controlled by external sources such as material rewards or constraints imposed by others (Deci & Ryan, 1985). Individuals who are motivated by external regulation perform in order to receive praise from significant others and/or to show others how talented they are. For example, an exerciser who is externally regulated would say: "Ok, I will exercise if I really must" (Vallerand & Losier, 1999). *Introjected regulation* occurs when external regulation has been internalized and is therefore no longer required to initiate a specified behaviour. In this case, internal pressures such as guilt and anxiety reinforce one's behaviour. For example, exercisers who attend fitness classes because they feel they must exercise to stay healthy and not for the satisfaction of being physically fit are

motivated by external introjection. In this example, an individual would say: "I take part in this exercise program because I would feel guilty if I did no exercise" (Vallerand & Loisier, 1999). When individuals feel that their behaviour is important and perform the behaviour out of choice, they are motivated by *identified regulation*. Even though they are behaving out of choice, their actions are extrinsically motivated because they judge their behaviour as important and are motivated to achieve their personal goals (Deci & Ryan, 1985). For example hockey players who identify the importance of lifting weights to increase their overall strength and fitness with the goal of improving on ice performance are motivated to lift weights by identified regulation. In this situation, the athlete would say: "I don't enjoy lifting weights, but I know if I do, it will make me a better player on the ice" (Vallerand & Loisier, 1999). *Integrated regulation* represents the most self-determined form of external motivation. Although individuals perform out of choice, it is still considered extrinsic in nature given that the behaviour is completed to achieve personal goals, and not for its inherent appeal. An exerciser who is motivated by integrated regulation would say: "I take part in this exercise program because it is important to me to have a healthy lifestyle" (Vallerand & Loisier, 1999).

Social Factors Influencing Motivation

It has been proposed that the different motivational types (i.e., amotivation, extrinsic, intrinsic) are influenced by a number of social factors (Ntoumanis, 2001; Vallerand, 1997; Vallerand & Losier, 1999). Deci and Ryan (1985) have suggested that social factors that increase perceptions of competence, autonomy, and relatedness promote a more self-determined behaviour (i.e., intrinsic motivation), whereas, social factors that undermine these perceptions promote amotivated behaviours. The following section will focus on three social factors: success and failure, competition, and leader behaviours that influence motivation.

Success and failure. According to Deci and Ryan (1985), social situations that provide failure feedback are more likely to create feelings of incompetence and decrease intrinsic motivation for that specific activity. On the other hand, social situations that involve successful feedback are more likely to create increased feelings of competence and therefore are hypothesized to increase intrinsic motivation. For example, in the sport context, Thill and Mouanda (1990) examined the effects of verbal feedback on intrinsic motivation. Handball players (n = 72) were randomly assigned to one of three conditions: a positive feedback group, a negative feedback group, or a no feedback group. All the participants completed a handball task and upon completion of the task were given feedback. Following the feedback, the players completed the Mayo Task Reaction Questionnaire (TRQ; Mayo, 1977). The TRQ is a 23-item questionnaire that measures intrinsic motivation. The results indicated that the positive feedback group had the highest levels of intrinsic motivation, followed by the no feedback group, and then by the negative feedback group. Given the results of Thill and Mouanda indicating a positive relationship between positive feedback and intrinsic motivation, Vallerand (1983) assessed whether the amount of positive feedback affected athlete intrinsic motivation on a hockey-related task. The participants included 50 male ice hockey players (13-16 years old) who performed a task consisting of 24 slides that tested the players' decision-making ability in simulated hockey situations. The players performed the task and received either 6, 12, 18, or 24 (on every slide) positive verbal reinforcements or no verbal feedback. Upon completion of the 24 trials (or slides), the players then completed the TRQ to intrinsic motivation and another to measure competence using one item inventory (e.g., To what extent did you feel competent following your performance on the hockey task?). The results showed that positive feedback increased players' intrinsic motivation and feelings of competence regardless of the amount of positive

feedback received. Although there was no difference between positive feedback conditions, the results showed that those receiving positive feedback had higher levels of intrinsic motivation and feelings of competence compared to players receiving no verbal feedback.

Whitehead and Corbin (1991) extended the above findings to the physical activity context when they examined the effect of performance on intrinsic motivation following a physical fitness test. Participants were 72 males and 33 females in grades seven and eight who were placed into one of three groups (i.e., control, positive feedback, and negative feedback). The participants completed an agility run and received bogus feedback according to which treatment group the participants had been placed. Participants in the positive feedback group were given high scores on the agility run whereas those in the negative feedback group were given low scores. Finally, participants in the control group were given no scores and were told that there was a computer error with their times. After receiving the feedback, participants were asked to complete an intrinsic motivation inventory. The results showed that participants receiving negative feedback had lower levels of intrinsic motivation, while participants receiving positive feedback had higher levels of intrinsic motivation. In other words, those who felt that they were successful on the agility run were more intrinsically motivated whereas perceived failure resulted in diminished intrinsic motivation.

Competition and cooperation. Another social factor believed to affect intrinsic motivation is competition. To date, a number of studies have examined the relationship between competition and motivation. For example, Deci, Betley, Kahle, Abrams, and Porac (1981) examined the effects of a competitive environment on intrinsic motivation. Participants included 40 male and 40 female undergraduate students who were divided into two groups (i.e., competitive and non-competitive conditions). The participants assigned to the competitive group

competed against another person in a puzzle task and were told by the researchers that to be successful they must beat their opponent. The participants assigned to the non-competitive group worked independently and were told to complete the puzzle in the least amount of time. Following the task, participants were asked to complete an intrinsic motivation inventory. The results indicated that participants in the competitive condition displayed lower levels of intrinsic motivation after completing the task compared to their non-competitive counterparts. Using a sporting context Fortier, Vallerand, Brière, and Provencher (1995) compared the motivation orientation of intercollegiate and intramural athletes in badminton, basketball, volleyball, and soccer. Similar to Deci et al. (1981), the results showed that intercollegiate athletes in a more competitive environment displayed less intrinsic and more extrinsic motivation (i.e., identified regulation) and amotivation than intramural athletes.

McAuley and Tammen (1989) also examined the influence of competition on intrinsic motivation. The participants were 80 male and 36 female undergraduate students enrolled in a physical education program. The participants were matched on ability and competed against another individual on a basketball jump shot task. Following the task, the participants completed the intrinsic motivation inventory (IMI; Ryan, 1982). The results showed individuals who were successful (i.e., the winners in the jump shot task) were more intrinsically motivated than their less successful counterparts.

Taken together, the findings suggested that competitive sport structures generally decrease intrinsic motivation. Furthermore, it appears that competition representing a win-at-all cost emphasis, negatively affects an individuals' intrinsic motivation and results in decreased feelings of self-determination (Vallerand & Losier, 1999).

Leader behaviours. The attitudes of other individuals can influence motivation (Frederick & Ryan, 1995). It is believed that coaches will have an important effect on athlete motivation since the feedback obtained from coaches can influence an athlete's perception of their competence, autonomy, and relatedness (Vallerand & Losier, 1999). Sinclair and Vealey (1989) examined the influence of coaches' feedback on self-perceptions (i.e., confidence, competence, self-esteem) of adolescent female field hockey players. Participants included 41 elite level athletes who were ranked best in their province. Self-confidence was measured using the trait sport-confidence inventory (TSCI; Vealey, 1986), perceived competence was measured using the self-perception profile (SPP; Harter, 1985) and self-esteem was measured using the self-esteem scale (SES; Rosenberg, 1965). Each participant was placed into either a high expectation or low expectation group. Athletes in the high expectation group were perceived by the coach to exhibit high skill level, whereas, the low expectation group were athletes with lower playing ability. Players in the high ability group received more overall feedback, more specific feedback, more evaluative feedback, and less directive feedback from the coach than those in the lower playing ability group. The results revealed that the frequency of feedback by the coach influenced an athlete's self-perception. Specifically, those in the high expectation group had greater levels of confidence, competence, and self-esteem than the low expectation group.

Given the importance of autonomy on intrinsic motivation, Pelletier, Fortier, Vallerand and Brière (2001) assessed the relationship between athletes' perceptions of coaches' autonomy support and motivation. The participants were 174 male and 195 female competitive swimmers (13-22 years old) were asked to complete a motivation inventory and an inventory to measure a coaches' autonomy support. Motivation was measured using the 28-item Sport Motivation Scale (Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995) that measures intrinsic, extrinsic, and

amotivation. Coaches' autonomy support was measured using a subscale of the Coaches' Interpersonal Style (CIS; Pelletier & Vallerand, 1996), which contains 8 items designed to measure perceptions of autonomy support. An example item is: "My coach provides me with opportunity to make personal decisions". The results indicated that coaches who were perceived to provide greater autonomy supportive environments had athletes who displayed higher levels of intrinsic motivation. No other type of motivation (i.e., extrinsic, amotivation) was significant.

Taken together, coaches who provided for a more positive environment through increased feedback and autonomy support appeared to instill higher levels of intrinsic motivation in their athletes. Therefore, an autonomy-supportive environment characterized by the coach's encouragement, positive reinforcement, and choice helped to increase self-determined types of motivation (e.g., integrated regulation, intrinsic motivation) displayed by athletes compared to a controlling environment characterized by pressure, negative reinforcement, and external rewards (e.g., trophies, money).

Consequences of Motivation

Research has shown that motivation produces various outcomes which are decreasingly positive from intrinsic motivation to amotivation (Deci & Ryan, 1991). According to self-determination theory, it is hypothesized that high levels of self-determined forms of motivation (e.g., intrinsic motivation, identified regulation) should lead to positive outcomes. On the other hand, less self-determined forms of motivation (e.g., external regulation, introjected regulation) should lead to less positive outcomes. In the physical activity literature (exercise, sport, physical education), the two most studied consequences of motivation have been affect and behavioural outcomes. Each of these outcomes will now be discussed.

Insofar as affect is concerned, a growing body of literature supports the belief that people must enjoy participating in an activity if they are going to adhere. On the other hand, a lack of enjoyment will lead to withdrawal from the activity. According to most motivational theorists, the primary satisfactions associated with intrinsically motivated actions are experiences of enjoyment (Ryan, Frederick, Lepes, Rubio, & Sheldon, 1997). As such, enjoyment can be considered a critical factor when determining why individuals continue or withdraw from physical activity programs. Markland (1999) examined self-determined motivations of 146 female exercisers in a community-based aerobics program on exercise enjoyment. The results showed that when self-determination was low, exercisers had lower levels of exercise enjoyment. That is to say, when motivations to exercise were more extrinsically motivated, exercisers found the exercise less enjoyable. In a similar study using secondary school children, Ntoumanis (2002) found that school children high in intrinsic motivation reported more positive affective outcomes, such as higher enjoyment and less boredom, in physical education classes.

Another important affective outcome is participant satisfaction. Martens (1970) examined the affects of affiliation and task motivation on the success and satisfaction of university intramural basketball players. The participants were over 1,200 male basketball players from 144 teams. Each player completed an inventory at the end of the season that assessed task and affiliation motivations, as well as team satisfaction. Success was operationalized as the number of games teams won during the season. Based on the results of the motivation inventory, teams were classified as low, moderate, or high on both task and affiliation motivations. The results indicated that high affiliation-motivated teams were less successful but more satisfied than the moderate and low affiliation-motivated teams. In contrast,

high task-motivated teams were more successful and more satisfied than moderate and low task-motivated teams.

More recently in exercise, Ryan et al. (1997) conducted two separate studies examining the relationship between participation motives and exercise adherence operationalized as attendance behaviours. In the first study, participants were 40 university-aged students and employees registered for either an aerobics or Tae Kwon Do class. Motivation was operationalized using the Motivation for Physical Activity Measure (MPAM; Frederick & Ryan, 1993) which measures reasons for participating in physical activity. More specifically, the MPAM contains three scales: body-related factors (e.g., I want to improve my body shape), competence (e.g., I want to improve existing skills), and enjoyment (e.g., I enjoy this activity). At the beginning of the program, participants completed the MPAM and attendance was monitored throughout the duration of the exercise program. Overall, the results indicated that competence and enjoyment motives were predictive of greater attendance. However, body-related factors were not significantly related to attendance.

Ryan et al. (1997) noted that a limitation of the first study was the exclusion of social motivation in exercise. As the authors suggested, a benefit of sport and exercise is the opportunity for individuals to interact with one another. Consequently, social contact may be viewed as a motive for participation in sport and exercise. Therefore, the purpose of the second study was to examine not only the same factors as Study 1 but also the relationship between social motives for exercising and attendance. The participants included 89 female and 66 male university students requesting a new, first time membership at a university fitness centre. Participants were asked to complete a revised version of the MPAM that included a scale on social motives and their attendance to the fitness centre was monitored throughout the semester.

Similar to the first study, the results indicated a positive relationship between attendance and the motives for competence (r = .26), and enjoyment (r = .19). Insofar as social motives are concerned, the results showed a positive relationship between attendance and social interaction (r = .21). Given the above results, regardless of the initial motives for participation, participants who displayed greater feelings of competence, enjoyment and satisfaction were more intrinsically motivated to participate. That is, when participation in an activity created an enhanced sense of self, participants were more likely to enjoy the activity, be satisfied with their involvement, and were motivated to continue their participation.

Another consequence of motivation is related to the behavioural outcomes. The two most studied behavioural outcomes are intention to participate and adherence. As for intention to participate, Biddle, Soos, and Chatzisarantis (1999) examined the relationship between children's motivation and intention to participate in sport at least one time per week. The participants included 723 elementary school-aged children representing a wide range of abilities and interests in sport and physical activity. Motivation was measured using a modified version of Ryan and Connell's (1989) self-regulation scale that assesses extrinsic, introjected, identified, and intrinsic motivation. Intention was measured using a single-item asking participants the extent to which they intended to participate in sport at least once per week over the next few months. The results revealed that students who were more self-determined (i.e., intrinsically motivated) were more likely to intend to participate in physical activity.

More recently with adolescents, Standage, Duda and Ntoumanis (2003) found similar results to those of Biddle et al. (1999). The participants included 160 males and 138 females enrolled in high school physical education classes. Each student was asked to complete an inventory that measured motivation and intention to participate in exercise/sport. More

specifically, motivation was measured using the SMS (Pelletier et al., 1995). Intention to participate was assessed by three items developed by Chatzisarantis, Biddle, and Meek (1997). Specifically, the participants answered the following three statements: "I am determined to exercise/play sport at least three times a week during the next month", "I intend to exercise/play sport at least three times a week during the next month", and "I plan to exercise/play sport at least three times a week during the next month". Responses were indicated on a 7-point scale rating from 1 (very unlikely) to 7 (very likely). The results suggested that intention to partake in exercise/sport was positively associated with self-determined motivation (r = .44) and introjected regulation (r = .29), and negatively associated with amotivation (r = -.24). In other words, students who displayed more self-determined motivation (e.g., intrinsic motivation) were more likely to intend to participate in exercise/sport three times a week during the next month. That is, intention to participate was best described by self-determined types of motivation (e.g., integrated regulation, intrinsic motivation).

With regard to adherence, the research examining the relationship between motivation and exercise adherence has shown that more self-determined types of motivation (e.g., integrated regulation, intrinsic) are associated with adherence behaviour. For example, Ryan et al. (1997) indicated that attendance in exercise programs was positively related to competence and enjoyment of the activity. Similar results have also been documented in competitive sports. In fact, Pelletier et al. (2001) examined the relationship between self-determined behaviours and drop-out in competitive swimmers over the course of two years. Participants were 174 male and 195 female competitive swimmers (13-22 years old) who completed the SMS (Pelletier et al., 1995) on three occasions. The first time was at the start of the season, the second time was ten months later, and the third time was twenty-two months after the initial time. The results

indicated that the athletes who displayed the highest types of self-determined motivation (e.g., identified regulation, intrinsic motivation) were more likely to persist with the activity when compared to athletes who were less self-determined (e.g., externally regulated and extrinsically motivated).

Although, a large body of research has shown that individuals who exercise for intrinsic reasons exhibit greater levels of exercise adherence, for many in the initial stages of exercise adoption the enjoyment (i.e., intrinsic motivation) and stimulation from physical activity may be insufficient to encourage adherence (Dishman, 1987). Thus, Mullen and Markland (1997) were interested in examining the relationship between the amount of time exercising and motivation. Prochaska and DiClemente's (1984) five stages of behaviour was used to measure the amount of time exercising. The five stages range from no thoughts of spending any time exercising to maintaining a regular exercise schedule. Motivation was operationalized using the Behavioural Regulation in Exercise Questionnaire (BREQ; Mullen, Markland, and Ingledew, 1997) which is a 15-item inventory measuring intrinsic and extrinsic types of motivation. The participants were 314 adults from three work companies and members of a local bridge club. The results indicated that those in the initial stages of adopting regular exercise displayed higher levels of extrinsic motivation (e.g., weight loss, improve physical appearance). On the other hand, those individuals who were maintaining a regular exercise schedule had higher levels of intrinsic motivation.

Given the relationship between daily physical activity and enhanced well being, promoting physical activity is an extremely important issue. Dishman, Sallis, & Orenstein (1985) have noted that adherence rates are problematic whereby 50% of adults who begin a supervised exercise program typically dropout within the first 6 months of that program. Also,

Duda and Tappe (1988) have pointed out that regular involvement in physical activity decreases with increasing age. It is therefore necessary to determine which factors contribute to regular physical activity in order to encourage the inclusion of daily activity into one's lifestyle.

One factor that has been found to be an important determinant of exercise adherence is group cohesion. Given that cohesion has been labeled the most important small group variable (Golembiwski, 1962; Lott & Lott, 1965), Carron (1982) suggests that "groups are social units and cohesion is the construct used to represent the strength of the social bond within the group" (p.124). Currently, the majority of the cohesion research has only examined different cohesion – output relationships. Specifically, cohesion has been found to increase satisfaction, mood, affect, and, attendance rates while decreasing dropout behaviour. However, inherent in the Carron (1982) framework is the notion that cohesion acts as a mediating variable. Also, a short–term measure of adherence has repeatedly been used, which is problematic given that individuals may continue a program for the duration of the program and then not choose to return in following years. Intention to return takes into consideration the temporal nature of exercise adherence and is therefore considered to be an alternative measure of adherence (Spink, 1995).

Along with cohesion, motivation is another input variable which may influence cohesion and/or other outcome variables. According to Deci and Ryan's (1985) SDT, higher levels of self-determined behaviour will be associated with more positive physical activity outcomes. In other words, individuals who are intrinsically motivated to complete a task will be more likely to succeed, compared to individuals who are extrinsically motivated to complete a task.

Loughead and colleagues concluded that task cohesion (i.e., ATG-T, GI-T) serves to mediate the relationship between fitness leader behaviours and exercise-related outcomes (e.g., exerciser satisfaction, mood, attendance, and perceived exertion). Considering the similarities

between cohesion and motivation with exercise adherence, it is unfortunate that these two variables have never been examined together. Given the mediational nature of the Carron (1982) framework, it is necessary to determine if cohesion does serve as a mediator between motivation and intention to return to physical activity (i.e., intramural sports).

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