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THE RELATIONSHIP BETWEEN TEAM SUCCESS AND WITHIN-GROUP DIFFERENCES IN GROUP COHESION

By

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of Graduate Studies and Research in
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ABSTRACT

This study investigated the within-group differences in ice-time and experience with the team in task cohesion perceptions of college hockey players and their relationship with team performance success. One hundred and seventy-one male hockey players between the age of seventeen and twenty-two years, representing ten teams, answered the two task portions of the Group Environment Questionnaire, as well as a question concerning their feelings regarding the amount of ice-time received during games. The data was analysed using a 3 x 2 ANOVA for success by ice-time and success by experience with the team for each of the two measures of task cohesion. The results showed the more successful teams to be most cohesive, but significant ($p < .05$) within-group differences were only found among the veterans and rookies of the least successful teams. It was concluded that within-group differences in cohesion exist in teams of low levels of success, but that highly and moderately successful teams do not experience the phenomenon. Teams success may be the determinant of the existence of within-group differences in task cohesion.

RÉSUMÉ

Cette étude a examiné les différences intra-groupe du temps de glace et de l'expérience avec l'équipe sur la perception de la cohésion à la tâche de joueurs de hockey collégiaux et leur relation avec le succès à la performance d'équipe. Cent soixante et onze joueurs de hockey masculins entre l'âge de dix-sept et vingt-deux ans, représentant dix équipes, ont répondu aux deux parties traîtant sur la tâche du Group Environment Questionnaire, ainsi qu'à une question concernant leur opinion à propos du temps de glace reçu durant les matches. Les données ont été analyzé en utilisant une analyze de variance 3 x 2 avec le succès par le temps de glace et le succès par l'expérience avec l'équipe pour chacune des deux mesures de cohésion à la tâche. Les résultats ont démontré que les équipes connaissant le plus de succès étaient les plus cohésives, mais des différences intra-groupe significative ($p < .05$) ont été trouvé parmi les vétérans et les recrues des équipes connaissant le moins de succès. Il fût conclu que les différences intra-groupe sur la cohésion existe à l'intérieur d'équipes qui réussissent le moins, mais que les équipes de succès élevé et moyen ne démontrent pas ce phénomène. Le succès d'équipe pourrait être le facteur déterminant dans l'existence des différences intra-groupe sur la cohésion à la tâche.

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CHAPTER I

INTRODUCTION

In team sports, group cohesion has always been thought as playing an important role in the success of the group. Alvin Zander (1974) could not have put it more simply when saying that " ... both amateurs and professionals generally feel that a team can't become a winner without it " (p.65). The question is: Is there, in fact, a real and tangible relationship between cohesion and the effectiveness of a group.

Research reported in past literature, unfortunately, has failed to support consistently the idea that group cohesion and team success are related. The many explanations of these ambiguous results, are dealt with later in this chapter. What researchers studying groups have agreed upon is that there are important characteristics to which groups abide. For one, a group must be cohesive to some extent in order to exist (Carron, Widmeyer and Brawley, 1978). Also, some scientists have the opinion that cohesion is the most important variable in the identity and effectiveness of small groups (Golembiewski, 1962; Lott & Lott, 1965). From its Latin derivative, cohesion means to stick together. In social psychology, cohesion is used to describe "the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (Carron, 1982, p.124). For years, it has been believed that there is a force which attracts individuals to groups and keeps them as members within those groups (Lewin, 1948; Festinger, Schachter & Back,

1950; Gross & Martin, 1952), and that these bonds between members can be called " cohesive forces ".

Although their terminology may sometimes differ, researchers divide cohesion into two distinct parts : A social dimension and a task dimension (Enoch & McLemore, 1967; Mikalachki, 1969; Carron, 1982; Yukelson, Weinberg and Jackson, 1984). The social dimension of cohesion deals with the motivation that individuals have to develop and maintain interpersonal relationships within a group. In other words, a person can be attracted to a particular group to fulfill certain of his or her social needs. On the other hand, the task dimension refers to a drive a person has to achieve a group's goals and objectives. For example, many athletes are attracted to elite sport teams because they are motivated and challenged to play a part in the success and accomplishments of a group.

Furthermore, Carron, Widmeyer and Brawley (1985) have argued that in addition to considering task and social concerns of groups, the issue of distinguishing the group from the individual is important (see figure 1). They refer to a study of Van Bergen and Koekebakker (1959), which identified a group concept and an individual concept of group cohesion. Carron et al. (1985) speak of the group concept as GROUP INTEGRATION (GI). This relates to the unity which exists within a group as a whole. They refer to the personal concept as INDIVIDUAL ATTRACTION TO GROUP (ATG). It can be described as the motives which influence the individual to stay in a group.

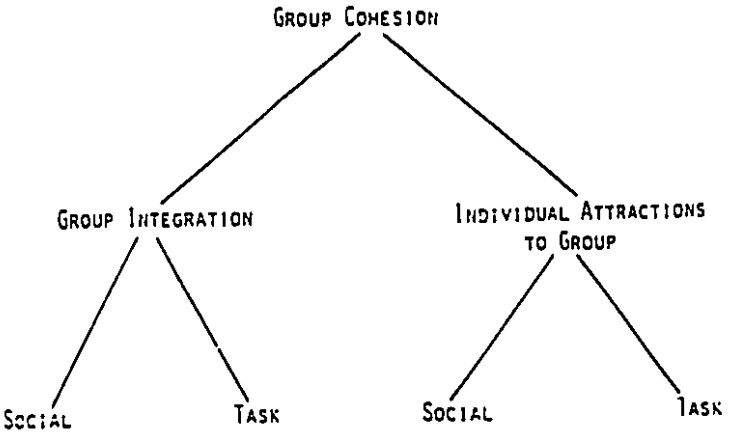

Figure 1: Conceptual model of group cohesion (From Carron, Widmeyer and Brawley, 1985, Journal of Sport Psychology, 7, p. 248)

In sport psychology, studies have tried unsuccessfully to use group cohesion measures to predict overall team success. Some found that cohesiveness had no effect on team effectiveness (Melnick & Chemers, 1974; McGrath, 1962). Others, while finding that a relationship existed between the two variables, did not agree on its direction. Many (Myers, 1962; Klein & Christiansen, 1966; Scilligo, Bergerone, Cei, Ceridono and Formica, 1986), found that the more cohesive groups experienced more success. The opposite was also found. The weaker the cohesiveness, the greater the effectiveness of the sports group (Fiedler, 1954; 1960; Lenk, 1969; Landers & Luschen, 1974).

Furthermore, cross-lagged panel analysis has suggested that, in fact, it is the success experience which increases the cohesiveness of a sport team (Carron & Ball, 1976; 1977; Carron & Chelladurai, 1981). More specifically, short-term success (Ruder & Gill, 1982), long-term success (Carron & Ball, 1976; Williams & Hacker, 1982; Salminen, 1987) and a winning tradition (Nixon,1977) have all been found to enhance cohesiveness of sport teams.

To explain those inconsistent results, Martens and Peterson (1971) have concluded that cohesion and success are related in a circular fashion, with the variable of satisfaction. They propose that a cohesive team experiences success, which in turn increases the satisfaction of the group members. This enhances the level of cohesion, which helps increase chances of success again and satisfies the individuals even more, and so on, maintaining this circular relationship.

Others have argued that the equivocal results obtained in past research were due to inappropriate measuring of the construct of group cohesion (Escovar & Sim, 1974; Carron, 1982; Yukelson et al., 1984; Carron et al., 1985). Methods of assessing cohesiveness in the past have focused mainly on measuring the strength of interpersonal attraction between group members (i.e. social cohesion). For example, measuring the degree of friendship among individuals who are part of a group (i.e. Fiedler et al., 1952). The criticism is that these procedures ignored the operational definition of cohesion, which describes the construct as multidimensional, possessing both

social-related and task-related processes (Lewin, 1948; Enoch & McLemore, 1967; Mikalachki, 1969; Anderson, 1975; Carron, 1982), as well as properties at the group and at the individual level (Carron et al., 1985). It seems agreed that adequate measures of cohesion need to allow for assessment of the four dimensions of which groups are composed. The use of so many different and inappropriate measures have made it difficult to estimate the validity and reliability of previous findings in this research area.

The cohesion-success relationship may also be affected by the task structure of the team being measured. (Landers & Luschen, 1974). Essentially two types of possible sport structures were proposed : Interacting, where task effectiveness is achieved by combining each teammate's specialized role in an interdependent way, such as in hockey, football, volleyball or soccer; and coacting, where team performance is measured by simply adding every individual's independent efforts, such as in bowling, archery and rifle shooting.

Some confusion in the cohesion-success relationship has originated from the fact that some studies have found low cohesive teams to be successful (Landers & Luschen, 1974; Lenk, 1969; McGrath, 1962). Closer examination of these works indicates that all the teams in these studies were of a coacting nature. Landers and Luschen (1974) further suggested the best performances of coacting sport groups might occur when cohesion is at a low level. Accordingly, the original idea that cohesive teams are more successful may still be true, but only for teams

engaged in sports where interaction among teammates seems essential (Carron and Ball, 1977; Martens and Peterson, 1971; Williams and Hacker, 1982).

Nature and Scope of the Problem

As mentioned earlier in this paper, inconsistent and inappropriate methods of assessing cohesion have produced equivocal results, not to mention confusion within the literature. This study will attempt to clearly delineate the nature of the cohesion-success relationship in an activity of interactive nature.

Different kinds of scores can be used to represent measures of cohesion. Many past studies have used the average of individual scores as the sole basis of comparing two groups on cohesion. This may not always be the best method of analysis, as statistics of change and commonality could also serve to enhance our comprehension of group dynamics (Carron, 1982).

In keeping with this idea, recent research has been focusing on what Spink (1992) refers to as "within-group differences". He argues that previous studies focused solely on the average cohesion score to make between-group comparisons, completely ignoring the fact that members of the same team may differ significantly on their perceptions of the group's cohesiveness. Two teams, with the same average score, could for example, possess two quite different distributions of individual player's scores around that mean. To that, Spink (1992) reflects : " Teams whose members are similar in their perceptions of group

cohesiveness also might be the teams who are the more successful" (p.380).

This notion of group variance is not new to this research topic. Resembling individuals have been said to form a more cohesive group (Zander, 1982), and the development of cliques within a team has been found to hinder group effectiveness. Cohesion has been found to be enhanced when members of a group are similar in attitudes and beliefs (Preston, Peltz, Mudd and Frosche, 1952; Terborg, Castore, and DeNinno, 1976; Carron, 1986) and communicate extensively, which helps draw group members together (Plutchik, 1981).

Although many means exist to analyze group variance, within-group differences on cohesion have been studied by examining player starting status on certain types of sport teams. There are a number of reasons for this. Starters can often be differentiated from non-starters of sport teams on another important variable in sport - level of skill (Spink, 1992). Therefore, starters, in certain sports, would, on the average, be expected to be more effective team players than non-starters. Starting status has also been reported as being an important goal for athletes to attempt to achieve (Scarisbrick and Allison, 1986). In other words, athletes are expected to be highly motivated to be considered a starter by their coach. A couple of previous studies have found a relationship between starting status and cohesiveness perception among athletes of sport teams; football (Granito & Rainey, 1988);volleyball (Spink, 1992).

More specifically, the results of the Granito and Rainey study indicated that within-group differences in cohesion score are only significant among less-successful groups, starters scoring significantly higher on cohesion than non-starters for these football teams. Spinks (1992), using volleyball teams, found similar results for less-successful groups, and also found that on successful teams, starters and non-starters did not differ significantly in their perceptions of group cohesion.

Studies which have used the Group Environment Questionnaire have only found significant differences with the task cohesion measures (ATG-T and GI-T). These two task dimensions have discriminated teams of different levels of success. In one study, players of successful volleyball teams rated their team's task cohesion higher than players of less successful teams (Davids and Nutter, 1988). This was also true of the previous two studies cited (Granito & Rainey, 1988; Spink, 1992). Successful teams have not been found to differ from less successful teams on their social dimensions (ATG-S and GI-S). Hence, because interest here is in looking at group task success (i.e. performance), it appears logical, that only the task dimensions of the GEQ may be used for purposes of analysis.

In hockey, being a starter of a game has less significance than in volleyball, because of the high frequency of player changes made during a game. Therefore, it would seem to be more meaningful to examine playing status when studying hockey players. As with starters in volleyball, hockey players who receive the most playing time are generally those who are most

highly skilled. And, being given considerable playing time should have value to any elite hockey player. Volleyball non-starter status, consequently, should resemble, as regards to hockey, the playing status of a lower skilled player, who, receives less playing time during a game.

Accordingly, on hockey teams, we would expect the same differences in perception of cohesion, depending on the levels of success of the teams. Teams with poor winning records would be expected to have the greatest differences between their players on group cohesion perception. One would expect that the individuals receiving the smallest amount of ice-time would rate cohesion the lowest, and those athletes benefitting of the greatest amount of ice-time would rate cohesion the highest. On the other hand, players of hockey teams experiencing considerable success would not be expected to rate cohesion differently, whether they received much or little ice-time.

Spink (1992) suggested that sub-groups such as starters and non-starters are only one of many ways within-group differences may be analyzed. Members of sport teams can be differentiated on many characteristics other than their starting status. For example, school teams are usually composed of athletes of different ages and experience. These athletes can be divided into two distinct groups - veterans and rookies. Veterans can be defined as those athletes of more than one year of experience with the team. On the other hand, athletes in their first year with the team may be referred to as rookies.

Veterans and rookies may be found to differ in many ways. Veterans, are normally older than their rookie counterparts. Veterans frequently have greater experience in the sport, which is often related to the level of skill an individual possesses (Magill, 1985). Also, veteran athletes may be inclined to feel more responsibility for team performances, since they have been found more likely to be chosen as team leaders (Rees and Segal, 1984). It seems logical therefore, that veteran athletes of a hockey team would perceive the task cohesion of their team differently from that of rookies of the same team.

Statement of the Problem

The purpose of this study is to examine the effect of team success on within-group differences in team task cohesion among college ice hockey players. Specifically, the objectives are to see if the amount of ice-time within games and experience with a team are useful indicators of a hockey player's task cohesion perception across teams of varying levels of success.

Hypotheses

1. The higher the success of the group, the greater will be its player's perceptions of team task cohesion.

2. The higher the success of the team, the smaller will be the within-group differences on measures of team task cohesion.

   2.1. The greater the amount of ice-time a player receives, the higher he will rate team task cohesion.

2.1.1. Perceived cohesion will not significantly differ between players receiving much or less ice-time on the most successful teams.

2.1.2. The players of the medium succcessful teams receiving much ice-time will perceive cohesion higher than the players of these teams who receive less ice-time.

2.1.3. The players of the least succcessful teams receiving much ice-time will perceive cohesion higher than the players of the same teams who receive less ice-time.

2.2. The more experience a player has with a team, the greater is his perception of team task cohesion.

2.2.1. The veterans and rookies of the more successful teams will not perceive cohesion differently one from the other.

2.2.2. The veterans of the medium successful teams will perceive cohesion higher than will the rookies of those teams.

2.2.3. The veterans of the least successful teams will perceive cohesion higher than the rookies of their teams.

Delimitations :

1. Only male, college hockey players were used in this study.
2. The age of the participants varied between 17 and 22 years.

Limitations :

1. Because college athletes may not represent truly a sample of the general population, caution is necessary in generalizing the results obtained.
2. The data collected in this study is valid only to the degree that the subjects provided honest answers to the questions asked.

Definitions

Within-group differences : Differences in perception of cohesion which exist among members of a group.

Ice-time : The amount of playing time a hockey player feels he receives on average during the games in which his team participates.

Interacting sport : A type of team sport where players occupying different positions work interdependently to achieve the game task.

CHAPTER II

REVIEW OF LITERATURE

This chapter presents an overview of the origins of the construct of cohesion and its various dimensions. The history of research on the topic is followed by discussion of the most important variables responsible in the development of group cohesion. The various measurement procedures are then explained in some detail. The last section treats the cohesion-performance success relationship and research findings of previous studies.

History of Group Cohesion Research

Group cohesion is a fairly recent topic of interest to social psychology. The word cohesion is derived from the latin word "cohaesus" which means to stick together. Lewin (1941) first introduced the notion of cohesion when he divided group processes as being composed of forces toward or away from group membership. The former forces he referred to as the cohesive ones. Later, Festinger, Schachter and Back (1950) defined cohesion very simply as the total field of forces causing members to remain in the group.

Some writers alleged that it was inappropriate to explain cohesion by focusing on the individual, rather than on the group. Therefore, they rationalized cohesion as a group's resistance to disruptive forces (Gross and Martin, 1952; Escovar and Sim, 1974). More recently, Carron (1982) described 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.

Consistent with these varied definitions, group cohesion has been viewed in the research literature as a multidimensional construct. Festinger et al. (1950) proposed that there were two forces that kept a group together: Attractiveness to the group and means control. The first was the strength of the appeal the group exerted on its members. The second referred to the extent to which the group satisfied the goals and objectives of its individual members. Enoch and McLemore (1967), similarly, explained cohesiveness as made up of intrinsic attraction and instrumental attraction. Following in their footsteps, other researchers referred to the two dimensions described by Festinger et al. as social and task cohesion (Mikalachki, 1969; Carron and Chelladurai, 1981; Carron, 1982). Thus, it was agreed that in group dynamics there is a need to distinguish between two important aspects of cohesion. There is the social component, associated with the processes involved in the development of interpersonal relationships in the group. Secondly there is the task aspect associated with the processes responsible for the achievement of group goals and objectives (Fiedler,1967; Hersey and Blanchard, 1977; Carron, 1982). Furthermore, the complex nature of group cohesion stimulated researchers to look beyond task and social cohesion in attempts to better define the construct. The issue of whether to focus on the individual or the group when looking at cohesiveness had been discussed earlier (Festinger et al., 1950; Gross and Martin, 1952; Van Bergen and Koekebakker, 1959). From that discussion it was recognized that there should be a distinction between the individual and the

group aspects of cohesion (Van Bergen and Koekebakker,1959; Zander, 1971; Carron, Widmeyer and Brawley, 1985). Thus evolved the idea that four components constitute the construct of group cohesion: (1) the individual aspect (2) the group aspect (3) the task aspect (4) the social aspect. It is with this in mind that Carron, Widmeyer and Brawley (1985) developed their conceptual model of group cohesion found herein on page 3.

Antecedents of Group Cohesion

The nature of group cohesion is such, that, the strength of the togetherness of a group is strongly influenced by many variables. These factors which affect the development of group unity are referred to by Carron (1988) as antecedents of group cohesion.

Situational factors

The nature of the situation of a group, such as a sport team, has considerable impact on the development of group cohesion. For example, normative forces of the environment surrounding a group have been found to influence the degree of cohesiveness of that group. Group cohesion is influenced by society's norm against quitting a group (Carron, 1988). The task motivation of the individual athletes relative to the team norm also has an effect on cohesiveness levels (Carron and Chelladurai, 1981). The relationship found between a group's performance norms and its cohesiveness is also an indication that group norms have a noticeable impact on the feelings members of a group have for each other and for their group in general (Carron, 1982; Kim and Sugiyama, 1992). Physical proximity between individuals of a

group has also been found to affect group cohesion (Festinger, Scachter and Back, 1950). In the study by Festinger and his colleagues, it was noted that closeness within student communities was an important contributor to cohesiveness, due to increased opportunities to interact and communicate. For similar reasons, group size has been found to have an effect on both the social and task cohesion of a group (Widmeyer, Brawley and Carron, 1988; Carron, 1990). Widmeyer et al. found that there was an optimal group size for cohesion to be at its highest. They found that small groups were higher in task cohesion, but that medium sized groups were stronger in social cohesion. Larger groups were found to have lower both task and social cohesion. Carron (1990) suggested that the reason for this was that increasing the size of the group makes it harder for its members to develop strong social bonds and to share similar opinions about the group's goals and objectives.

Personal factors

The second category of factors, called personal factors, are those which relate to the characteristics of the individuals of which the group is composed. It has been suggested that the cohesion of a group is improved if individuals of a group are alike in personality (Preston, Peltz, Mudd and Froscher, 1952), social background (Eitzen, 1975), and attitudes or motives (Zander, 1982). It is more likely for people similar to each other, than people different in the above attributes, to communicate harmoniously and develop group goals and strategies (Plutchik, 1981, Chelladurai, 1989). As a result of these

findings, Spink (1992) suggested future research in cohesion should focus on the differences that may exist within a group. He referred to this line of research as examining within-group differences. Spink argued that using a group's average of cohesion might not provide a true representation of the cohesiveness level of a group of individuals. According to his theory, and supported by the facts that similarity between group members influences cohesion development, a group's cohesion level would better be measured by analyzing group variance, not group average. Hence, a group with large within-group differences in perceptions of group cohesion would be considered less cohesive than a group with small divergences in group cohesion perceptions. A couple of studies with sport teams, using starting status as a mediating variable to within-group differences, have found that individuals of different group status rate group cohesion differently (Granito and Rainey, 1988). Spink's idea of within-group differences was validated when it was discovered that significant intra-group divergences existed within less effective groups, and not within those more successful (Spink, 1992). It has been suggested that future research look at using different subgroups, as well as different sport teams to further our understanding of the within-group differences relationship in group cohesion (Spink, 1992).

Research has looked at sex differences in group cohesion, but gender of the group members has yet to be found to conclusively influence level of cohesiveness (Carron, 1988; Widmeyer and Martens, 1978). Widmeyer, Brawley and Carron (1985) found male

sports teams to be higher in social cohesion than female teams, while Reis and Jelsma (1978), found male groups to be higher in task cohesiveness, and females higher in social cohesion.

Leadership factors

Leadership is another factor which has been said to impact on the development of group cohesion (Carron, 1988; Brawley, 1989). More specifically, it has been suggested that the leader's behavior is reflected in the togetherness of the group. In task-oriented groups, the clarity of the goals and strategies defined by the leader as well as the specifying of each member's role within the group are important variables to insure a strong team cohesiveness (Anderson, 1975; Raven and Rietsema, 1975). A leader who communicates well, has a tendency to give strong feedback, and remembers to reward group members has been found to nurture a higher level of cohesiveness within his or her group than those who fail to do these things (Biondo and Pirritano, 1985; Carron, 1986; Brawley, 1989). Finally, coaches using a democratic style of decision-making have been said to produce greater cohesion levels than coaches who use a more autocratic approach (Bovard, 1951; Carron and Chelladurai,1981; Carron, 1988; Brawley, 1989). Involving the team members in making decisions is alleged to provide a feeling of influence on the group's direction and strategies, which inclines the athletes to be more committed to the consensus achieved (Carron, 1988; Brawley, 1989).

Team factors

Team factors have also been stated to have a relationship to group cohesion development. Although some studies have found that cohesion affects future success, other studies have found that a group which experiences success will see group cohesiveness improve. Ruder and Gill (1982) found that cohesion levels of sport teams were greater immediately after a successful competition. Nixon (1977) found in his study of basketball that teams with a past history of success (a winning tradition) were more likely to show signs of high cohesiveness than those with poorer success records. Success and strong cohesion prepared those teams for continued success. However, cohesion is not built only on successful foundations. Failure to succeed has also been found to contribute to greater team cohesiveness (Turner, Hogg, Turner and Smith, 1984). Brawley, Carron and Widmeyer (1988), found that groups who perceived themselves as more resistant to disruptive forces were also those same groups who perceive their teams to be higher in task cohesion. This is consistent with Gross and Martin's (1952) definition of cohesion, which stated that group cohesion should be referred to as a group's resistance to disruptive forces.

The task motivation of the group (the drive to achieve group goals) is another team factor said to precede the formation of group cohesion. Studies have shown that high task motivation enables the development of high task cohesion (Carron and Chelladurai, 1981). These results are supported by previous

research which associated high task motivation with better team success and satisfaction of basketball teams (Martens, 1970).

Also, after factor analyzing five individual measures of cohesiveness, Carron and Chelladurai (1981) found that the perception of cohesion is moderated by type of group membership. The variables which contributed to cohesion ratings differed between independent task sport teams where the task is a sum of independent efforts such as in wrestling and swimming, and interdependent task sport teams where the task requires cooperation between members, such as in hockey, volleyball and basketball. These facts were first recognized in studies which found low levels of cohesion to exist in the presence of high levels of performance in rowing teams (Lenk, 1969) and bowling teams (Landers and Lueschen, 1974). Carron (1988) argues that "togetherness is more important in sports where cooperation is essential for effective group coordination" (p.168). In sports where independence of task is required, rivalry, intragroup conflict and thus lower cohesion seem necessary to produce better performance outcomes. This within-group competition seems to create the optimal environment for individual performances.

Measurement of Cohesion

The measurement of cohesion has received a considerable amount of attention within the field of group dynamics. In the beginning, the measuring of group cohesion was based on Festinger et al.'s (1950) research and definition of the concept. It used the assessment of interpersonal attraction between group members as an indication of a group's cohesiveness level (Bovard, 1951;

Deep, Bass and Vaughan, 1967; Lenk, 1969; Martens and Peterson, 1971). This method of measurement was subsequently highly criticized. It was argued that the concept of group cohesion was more than just the dimension of interpersonal attraction between group members (Escovar and Sim, 1974; Carron, 1982; Yukelson, Weinberg and Jackson, 1984; Carron, Widmeyer and Brawley, 1985). The more recent writers on the subject agreed that cohesion was a multidimensional construct, and that the measurement procedure should address that issue.

Martens, Landers and Loy (1972) devised the first instrument to assess the cohesion of groups in sport in the Sport Cohesiveness Questionnaire (SCQ). This measure assesses seven aspects of cohesion:

1) The degree of friendship among group members.
2) The relative influence of group members.
3) The sense of belonging the individual feels to the group.
4) The value the individual attaches to membership in the group.
5) The degree of enjoyment the individual derives from participating in the activities of the group.
6) The level of teamwork the individual perceives is present within the group.
7) The degree of closeness the individual feels is present in the group.

Carron (1982) criticized the instrument by pointing out that with the exception of teamwork, each factor of the SCQ "measures some type of attraction - either attraction between and among group members, or the attractiveness of the group itself" (p.126). Furthermore, Carron proposed that, in agreement with Mikalachki (1969) and to expand the operational definition of cohesion beyond socioemotional attractiveness, future measuring instruments should discriminate between task and social cohesion.

In light of these suggestions, Yukelson, Weinberg and Jackson (1984) developed the Multidimensional Sport Cohesion Instrument (MSCI). The purpose of this questionnaire was to have an instrument which would measure both task-related and social-related forces, which are thought to be especially important constituents of group cohesiveness. Using 196 basketball players (men and women), the authors validated 22 of 44 original items to measure cohesion. Factor analysis found that each item could be placed in one of four factors of; (1) Quality of teamwork, (2) Attraction to the group, (3) Unity of purpose, (4) Valued roles. Yukelson et al. believed that those four factors were the best discriminators between high and low cohesive teams.

With similar intentions, Carron, Widmeyer and Brawley (1985) suggested that a lack of conceptual clarity in the past led to inadequate measurement procedures. Their goal was then to provide a valid and reliable instrument in order to obtain unequivocal results in the study of group cohesion in sport teams. To accomplish this, the authors developed a conceptual model on which they could base the construction of their

measuring instrument. In their model they introduced the idea that there were two important distinctions to be made when trying to define the construct of group cohesion. They insisted that there must be a distinction made between the group and the individual, and one between the task and social processes of the group. The group was referred to as group integration (GI). The individual was identified as individual attraction to group (ATG). In recognition of the task and social components as well, the model was composed of four constructs:1) Individual attraction to group-task (ATG-T) 2) Individual attraction to group-social (ATG-S) 3) Group Integration-Task (GI-T) 4) Group Integration-social (GI-S). The authors also came to an agreement that the assessment of group cohesion was possible through the perceptions of the members of the group. This model led to the validation of an 18-item, four scale inventory called the Group Environment Questionnaire (GEQ). The GEQ was proven through a number of studies to be reliable and valid for use in assessing cohesion levels of sport teams of different types of task structure (independent or interdependent) (Brawley, Carron and Widmeyer, 1987, 1988) of different types of individuals (elite and recreational), (Brawley et al., 1987,1988) as well as of either gender (Brawley et al., 1987; Spink, 1990).

Cohesion-Success Relationship

The ultimate purpose of sports psychologists in measuring cohesion is to determine if, as many coaches and athletes have been thinking for quite some time, more cohesive teams experience more success than less cohesive units. In other words, does a

highly cohesive team have more chances of succeeding than a team low in group cohesion. The research to date has not been conclusive. The results produced from past studies have yet to be able to ascertain the relationship which exists between group cohesion and performance success. Some studies have found that group cohesion is a useful predictor of the success of sport teams (Ball and Carron, 1976; Carron and Chelladurai, 1981; Landers et al., 1982), but others have not (McGrath, 1962; Melnick and Chemers, 1974; Mutafova and Ivanov, 1985). Crossed-lagged panel correlational designed studies have also been used to verify whether cohesion or performance precedes the other in time. This latter type of research consists in taking repeated measures of both variables over the course of a season. The correlations obtained between the measures taken at different times are then used to give an indication of which variable causes the other. Their results have suggested that the tendency is for performance success to lead to greater cohesion (Carron and Ball, 1977; Salminen, 1987; Shangi and Carron, 1987). Because of these results, many researchers agree with Martens and Peterson's (1971) theory (Williams and Hacker, 1982; Carron, 1982). They stated that the two variables are related to each other in a circular fashion and that satisfaction is an integral part of that relationship. Their study found that cohesion discriminated between satisfied and unsatisfied teams. They implied from their results, that cohesive teams would be more successful than non-cohesive teams. Players of more successful teams, then, would become more satisfied with participation, and

this satisfaction would increase their team's cohesion. Although they also agreed that there are other factors which will influence team success and cohesion, they concluded that "higher levels of cohesiveness are associated with greater success and satisfaction" (p.59).

In view of these mixed findings on the subject of the relationship between team cohesion and success, several explanations have been presented. There has been concern that measurement inconsistencies have caused research to obtain equivocal results. There have been many ways by which group cohesion has been assessed. Some research has focused on the measurement of the strength of social relationships within the group (Fiedler et al., 1952; Deep et al., 1967; Lenk, 1969). Others have looked at cohesiveness as a more comprehensive construct through the use of one of a variety of group cohesion inventories developed for sport teams. The Sport Cohesiveness Questionnaire was used by Martens, Landers and Loy (1972) and Salminen (1987). The Multidimensional Sport Cohesion Instrument was used by Yukelson, Weinberg and Jackson (1984). Lastly, the most recently developed inventory of group cohesion in sport, the Group Environment Questionnaire, has been used in numerous studies since its creation by Carron et al. (1985). Comparisons between different studies are becoming easier as more authors of group cohesion research use the GEQ (Brawley, Carron and Widmeyer, 1987). This consistency in measurement procedures should improve tremendously the efforts made to understand the relationship between group cohesion and team success.

Conclusion

Group cohesion and its relationship with performance success has been a poorly researched topic in the area of group dynamics. Hence, there remains many unanswered questions about cohesion and its different dimensions, cohesiveness being a multidimensional construct (Carron, 1988). Primarily, efforts have been made to operationnaly define cohesion in order to better comprehend and measure it. Although many instruments have been used, the Group Environment Questionnaire, which was derived from a multidimensional, conceptual model, is the most frequently and recently used for the assessment of group cohesion in sport (Carron et al., 1985).

Cohesion is measured through a group and an individual orientation, each of which is characterized by either task or social motives. It has been established that the constituents of group cohesion are best assessed through the perceptions of individual group members (Widmeyer et al, 1985). Mediating factors of group cohesion can be clustered into four different categories. Situational, personal, leadership, and team variables all have an influence on the nature and strength of a group's cohesiveness.

To perform well as a unit in order to achieve success is an important goal for any competitive sport team. To completely understand the functioning of cohesion and its impact on sports teams, the relationship between cohesion and performance success must be more fully examined. Recent research points to within-group differences in cohesion perceptions as a better window to

the comprehension of the cohesion-performance success relationship of competitive athletic teams.

In summary, the cohesion-performance success relationship is still in need of answers. The Group Environment Questionnaire and the study of within-group differences in cohesion have been used in recent research to begin unravelling the equivocal findings present in the existing literature.

CHAPTER III

METHODS AND PROCEDURES

The data for this study was collected with hockey players of the Quebec College (Cegep) Hockey league. The cohesion perception of each subject was evaluated using the Group Environment Questionnaire. The questionnaires were completed individually. The data was taken in the final weeks of the regular season.

Subjects

Ten of the thirteen teams of the Quebec Cegep "AA" Hockey League participated in this study. All players who were present at the team practice when the questionnaires were distributed participated in the study. In all, 171 players between 17 and 22 years of age, from these teams, completed the necessary questionnaire. Three players were excluded from the analysis because their responses to the questionnaire were incomplete. The subjects' data were assigned to two of the four subgroups according to their answers to section A and B of the instrument, which are described in more detail in the next sections.

Instrumentation

The instrument used was made of three separate sections, A, B and C (see Appendix A). Section A assessed the number of years of experience of the subject with his team. Each subject had to circle the number of years they had been with the team, including the season in progress. In section B, the subject was asked to choose among three statements that which he felt represented the

amount of ice-time he was receiving on average each game during the present season. Section C was made up of the task items of the Group Environment Questionnaire, and is described in more detail in the next subsection.

The group environment questionnaire (GEQ)

Section C of the instrument consisted of a modified version of the GEQ. The GEQ in full (task and social components) is made up of 18 items developed in 1985 by Widmeyer, Brawley and Carron (1985). This instrument was used in this study to measure each respondent's perception of their team's level of task cohesion. It is believed to be one of the few group cohesion measuring instruments to have been psychometrically validated and proven reliable (Widmeyer, Brawley and Carron, 1985). It is also believed to be the first that has been created on the basis of a conceptual model (Carron et al., 1985).

The GEQ is composed of four scales. They are :

- Individual Attraction to the Group-Task (ATG-T)
- Individual Attraction to the Group-Social (ATG-S)
- Group Integration-Task (GI-T)
- Group Integration-Social (GI-S)

The Individual Attraction to the Group (ATG) items assess the degree to which the individual feels attracted to the group on a personal basis. The Group Integration (GI) indicates the degree to which the member feels the group is close and bound, as a unit. Each of these variables, have both a Task (T) and a Social (S) orientation. The task orientaion refers to the goals and

objectives of the group. The social orientation focuses on the relationships which exist between the members of the group.

Each scale of the questionnaire measures a different component of the group cohesion construct. Therefore, the GEQ gives four different scores of a team's cohesiveness. Because the purpose of this study was to examine cohesion in elite hockey teams, only the two task measures of the instrument were used. This ment that only items from individual attraction to the group-task (ATG-T) and group integration-task (GI-T) composed section C of the instrument used in this study. This is because the task aspect of a group is considered to be of greatest importance to elite sport teams in being consistent with the basic objectives of such groups (Mikalachki, 1969; Brawley, Carron and Widmeyer, 1987).

Nine questions in total make up the task portion of the GEQ. Four items complete the ATG-T, while the GI-T is composed of five others (See appendix A for the modified copy of the GEQ). The questionnaire uses a 9-point Likert-type scale, which registers answers on a continuum from "strongly agree" to "strongly disagree". Each item is given a score according to the number that is circled on the continuum. For example, one Group Integration-Task item is: "Our team is united in trying to reach its goals for performance". When the answer to this question is "strongly agree", the score given is a nine, because it displays a high level of the above GI-T construct. In comparison, because it demonstrates the weakest support for the item, "strongly disagree" receives a one. Every answer between these extremes, is

attributed a score accordingly from two to eight. A total score is obtained for each scale by adding the scores from each of its corresponding items.

Coach 's evaluation of ice-time

An instrument was developped to record the perception of the head coach regarding the amount of ice-time each player of his team received on average during the season (see Appendix B). This instrument, asked the coach to list the names of his players, and rate the amount of ice-time he gave each player on average during the season. Included as alternative ratings were the same three statements used to assess the player's perception of ice-time.

Procedures

Because the mother tongue of most subjects was french, the questionnaire had to be translated from the original english version. To do so, the techniques suggested by Vallerand and Halliwell (1983) were used. The original english version of the instrument was translated into the french language by a bilingual individual. Another bilingual individual then translated the items back into their original language. The translated version was then evaluated by a group of sport psychology experts who made changes to enhance the quality of the questions when deemed necessary.

The head coach of each team was initially contacted and agreed to have his team participate in this study. Arrangements were made for the players to complete the questionnaires either before or after a team practice. The subjects were instructed as

a group as to the purpose and the requirements of the study. Each subject signed the consent form and completed the accompanying questionnaire individually, either in their team's dressing room or in an adjacent room. Ten to fifteen minutes were required for participants to answer all questions. During that time, the team's head coach was asked to rate the average amount of ice-time per game each of his players received during the hockey season, using the instrument created for that purpose. A Spearman Rank Order Correlation coefficient was calculated to compare the player's perceptions of the amount of ice-time they received to the information provided by the coach about the same ice-time. The calculated coefficient was r=.737, and was considered sufficiently high to permit the use in later analyses of the players' own ratings of their ice-times.

Treatment of the Data

The data from each of the 10 teams which participated were put into one of three success groups. Since the teams had not played an equal number of games at the time of data collection, comparisons between teams were made using their win-loss records. These records were used to calculate a performance average by dividing the number of wins into the number of games played. The data of the three teams with the best records were grouped together to form the high success group. The four next best teams (fourth to seventh) were chosen to form the medium success group. The low success group was composed of the three teams (eighth to tenth place) with the lowest performance percentage in the league, at the time of data collection. Table 1 shows the

teams' win-loss records, their corresponding performance averages and placements in the success groups. There were no tie games reported in this league. Any game tied at the end of regulation time was decided by a five minute overtime period. When the score was still tied after that, a shootout would determine the winner.

Table 1

Quebec College Hockey Teams Rankings, Win and Loss Records, Performance Average and Corresponding Success Group

Rankings	Games played	Wins	Losses	Performance Average	Success group
1	29	28	1	.965	HIGH
2	30	25	5	.833	HIGH
3	28	23	5	.821	HIGH
4	30	18	12	.600	MEDIUM
5	28	15	13	.536	MEDIUM
6	28	14	14	.500	MEDIUM
7	26	13	13	.500	MEDIUM
8	26	8	18	.308	LOW
9	30	6	24	.200	LOW
10	26	3	23	.115	LOW

For each subject, two cohesion scores were calculated. One represented a score on the ATG-T scale, and was determined by adding the points from items one through four of section C of the questionnaire. The second represented the score on the GI-T scale. It was calculated by adding the scores of items five through nine of section C.

All players were categorized into one of two ice-time groups, depending upon their answers to section B (see appendix A) of the

questionnaire. Respondents who chose statement (A), were players who, on the average, felt they got at least a regular shift during games, played often on the power-play and/or penalty killing, and were used often in important situations at the end of a period or a game. These subjects were put into the much ice-time group. Subjects who circled statement (B), were players who, on average, got a regular shift, sometimes also played on the power-play or in penalty-killing, and/or sometimes played in other important offensive or defensive situations. The subjects who chose statement (C) were players who on average, got less than a regular shift, seldom played on the power-play or in penalty-killing and/or did not get dressed for certain games. Those subjects who chose (B) or (C) were treated in the analysis as part of the less ice-time group. The average of each of the task cohesion scores of individuals in each group was the bases of comparisons between groups.

The respondents were classified, in respect to experience with tne team, into one of two categories depending on the number of years they had been with the team. First year players were referred to as rookies. The veterans were those players of more than one year of experience with the team.

A 3 x 2 (success by ice-time) two way ANOVA was computed to verify if differences in each measure of team task cohesion existed among players receiving different amounts of ice-time, on teams having varying levels of success. When significant main effects were obtained, Tukey's post hoc comparison method was used to make all pairwise comparisons within each group of

success across all levels of ice-time. A 3 x 2 (success by experience with the team) two way ANOVA was used to find out if differences in each measure of team task cohesion existed between veterans and rookies on teams of different success levels (high, medium and low). Tukey's post hoc tests were used to compare veterans to rookies within each success level and in order to find if there were within-group differences.

The .05 alpha level of significance was used for all statistical analyses in this study.

CHAPTER IV

RESULTS

The statistical results of this study are reported succinctly in six tables in this chapter. Three of these deal with cohesion ratings in relation to team success and player ice-time. The other three tables concern the cohesion assessments in relation to team success and experience with the team. In each case, an initial table reports the means and standard deviations for each subgroup, followed by two tables reporting the results of the analysis of variance for each different cohesion measure. Scores and differences of significance are pointed out in the text.

Amount of Ice-time

Means and standard deviations for both cohesion variables (ATG-T and GI-T) for each success group, with varying amounts of ice-time (much and less ice-time) are displayed in Table 2. From this, it appears that the more successful group scored higher than the medium and least succesful groups on both cohesion variables, regardless of the amount of their ice-time. Further inspection of the table suggests that on ATG-T, the much and less ice-time groups of the medium and low success levels are very similar on cohesion perception. Also on ATG-T, within the most successful group, players receiving much ice-time seem to have scored cohesion higher than the players receiving less ice-time. On GI-T, players with varying amounts of ice-time within their success groups did not appear to see cohesion differently.

Table 2

Task Cohesion Scores for Ice Hockey Groups of Varying Levels of Success and Amounts of Ice-time.

		Success			
		High n=51	Medium n=68	Low n=52	Total n=171
ICE-TIME					
	ATG-T				
Much					
n=79	M	29.3	22.3	23.8	25.2
	SD	1.16	1.12	1.25	0.68
Less					
n=92	M	25.8	21.7	22.0	23.2
	SD	1.23	0.96	1.12	0.64
Total					
n=171	M	27.7	22.0	22.8	
	SD	0.74	0.75	0.91	
	GI-T				
Much					
n=79	M	33.7	28.0	24.8	28.8
	SD	1.39	1.35	1.51	0.82
Less					
n=92	M	32.0	26.0	24.4	27.5
	SD	1.48	1.16	1.35	0.77
Total					
n=171	M	32.9	26.8	24.6	
	SD	0.96	0.75	1.20	

The results from the team success by amount of ice-time (3 X 2) ANOVA on ATG-T are presented in Table 3.

Table 3

Analysis of Variance of ATG-T Cohesion of Group Success and Ice-time

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Square	F	P
Success	1034.762	2	517.381	14.315	.0001
Icetime	223.862	1	223.862	6.194	.014
Success by Icetime	61.234	2	30.617	0.847	.431
Error	5963.712	165	36.144		

The analysis revealed that a significant main effect was found for group success ($F_{2,165}$=14.315, p=.0001). A post hoc test of differences using the Tukey method showed that in fact, subjects of the most successful group rated task cohesion significantly higher than did the medium (p=.0001) and the least (p=.0001) successful groups. The medium and least successful groups did not differ significantly on ATG-T cohesion.

The obtained significant main effect of icetime ($F_{1,165}$ = 6.194, p=.014) indicated that subjects who received more ice-time rated ATG-T cohesion higher than those receiving less playing time. The post hoc test of differences did not reveal a significant differences between the much and less ice-time group within any of the success levels.

The results of the success by amount of ice-time (3 X 2) factorial ANOVA with GI-T shown in table 4 reveal that success was the only main effect ($F_{2,165}$=18.416, p=.0001) to be

significantly different. Post hoc comparisons using the Tukey method showed that players in the high success group, regardless of the amount of their ice-time, perceived team cohesion to be higher than the players in the medium and low success groups. The medium and low success groups did not differ significantly in their assessments of GI-T cohesion.

Table 4

Analysis of Variance of GI-T Cohesion based on Group Success and Ice-time

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Square	F*	P
Success	1932.596	2	966.298	18.416	.0001
Icetime	159.694	1	159.694	3.044	.083
Success by Icetime	19.858	2	9.929	0.189	.828
Error	8657.586	165	52.470		

Experience with the Team

An overview of the means and standard deviations displayed in Table 5 suggests that veterans and rookies were very much alike in their perceptions of cohesion. Veterans and rookies appear to differ on cohesion score only in the least successful group. The veterans rated ATG-T slightly higher than did the rookies, but the differences do not appear significant. On GI-T, the veterans of the low success group show higher scores than the rookies and the difference appears significant. The veterans and

rookies do not appear to differ significantly within either the medium or most successful groups on either cohesion measure.

Table 5

Task Cohesion Scores for Ice Hockey Groups of Varying Levels of Success and Experience with their Team.

		Success			
		High n=51	Medium n=68	Low n=52	Total n=171
EXPERIENCE WITH THE TEAM					
Veterans	ATG-T				
n=91	M	27.9	21.2	24.1	24.4
	SD	1.10	1.10	1.08	0.63
Rookies					
n=80	M	27.3	22.6	20.9	23.6
	SD	1.32	0.98	1.32	0.70
Total					
n=171	M	27.7	22.0	22.8	
	SD	0.74	0.75	0.91	
Veterans	GI-T				
n=91	M	33.0	26.6	27.4	29.0
	SD	1.28	1.28	1.26	0.74
Rookies					
n=80	M	32.8	27.0	20.5	26.8
	SD	1.53	1.14	1.53	0.82
Total					
n=171	M	32.9	26.8	24.6	
	SD	0.96	0.75	1.20	

The results of the ANOVA for ATG-T cohesion of success and experience with the team in Table 6, reveal no significant effect of players' experience with the team, nor an interaction between experience with the team and team success.

Table 6

Analysis of Variance of ATG-T Cohesion of Group Success and Experience with the Team

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Square	F	P
Success	1034.762	2	517.381	14.315	.0001
Experience with team	44.214	1	44.214	1.215	.272
Success by Experience with team	151.543	2	75.771	2.081	.128
Error	6006.551	165	36.403		

The 3 x 2 results of the (success by experience with team) factorial ANOVA used to analyze the cohesion scores obtained with GI-T are shown in Table 7. A main effect ($F_{1,165}=4.076$, $p=.045$) was found for years of experience with the team. Veterans as a whole rated team GI-T cohesion significantly higher than did the rookies. A significant interaction ($F_{2,165}=4.488$, $p=.013$) between success level and experience with the team was also found to exist. The Tukey post hoc method of analysis showed that there were no within-group differences among players in the high and medium successful teams. Veterans of these teams did not see GI-T cohesion differently from the rookies of the same teams ($p>.10$). Tukey's post hoc test of differences revealed a significant within-group difference among the least successful group, veterans (mean=27.4) rating the GI-T cohesion of their

significantly higher (p=.006) than the rookies (mean=20.5) of the same teams.

Table 7

Analysis of Variance of GI-T Cohesion Scores of Group Success and Experience with the Team

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Square	F*	P
Success	1932.596	2	966.298	19.555	.0001
experience with team	201.397	1	201.397	4.076	.045
Success by Experience with team	443.559	2	221.779	4.488	.013
Error	8153.165	165	49.413		

Summary

The statistical analyses performed on the cohesion scores of the college ice hockey players demonstrated some significant differences. The players of most successful teams scored cohesion higher than did the players of the medium and least successful teams. In general, players who received more ice-time rated their teams as more cohesive on ATG-T than did the players who received less playing time, although post hoc analyses did not locate any significant differences between the much and less ice-time groups within any specific success level. Ice-time did not have a significant effect on GI-T cohesion scores across success levels or at any particular level. Concerning experience with the team, the subjects who were veterans scored GI-T

cohesion higher than did those considered as rookies on their teams. Furthermore, post hoc analysis found significant differences between the veterans and rookies within the least successful group on GI-T cohesion scores. No within-group differences (veterans versus rookies) were found among the high and medium successful group in GI-T cohesion. With ATG-T, veteran players showed no significant differences in perception of cohesion from the rookies.

CHAPTER V

DISCUSSION

The purpose of this study was to examine the effect of team success on within-group differences in team task cohesion among college ice hockey players. Within-group differences were measured by dichotomizing subjects in two different ways; amount of ice-time; experience with their teams. The two hypotheses and six subhypotheses proposed are discussed in this chapter in light of the results obtained.

Cohesion-Success Relationship

Hypothesis #1, which stated that the higher the success of the group, the greater would be its players' perceptions of team task cohesion was partially supported. The players of the most successful teams showed significantly greater cohesion scores than did those of the medium and low successful teams across both measures of team task cohesion. The medium and low success teams, however, did not differ significantly on either measure. This suggests that ice hockey players of highly successful teams (above .800 in performance average) perceive team task cohesion higher than players of lower task performance success (.600 and below in performance average). These results agree with previous studies which found more cohesive teams in interactive sports to be more successful (Myers, 1962; Klein and Christiansen, 1966; Scilligo et al., 1986) and players of successful teams to rate task cohesion higher than players of less successful teams (Davids and Nutter, 1988). An interactive sport is one where task success is achieved through teammate cooperation and

interdependance. In this type of activity, there has been consistently found to be a positive relationship between group cohesion and team success (Martens and Peterson, 1971; Carron and Ball, 1977; Carron and Chelladurai, 1981; Carron, 1982; Williams and Hacker, 1982; Davids and Nutter, 1988; Spink, 1992).

The fact that the medium successful group did not score higher on cohesion than the least successful group was not anticipated. The perplexing situation is that the medium successful group rated cohesion low. Since the performance success of these teams can be considered as good (performance average of .500 or better), it cannot be blamed for the poor cohesion of those teams. But it may indicate that the potential of these teams is greater than their records show. The members of these teams may believe their teams can do better, and blame poor task cohesion for their average records.

In summary concerning hypothesis #1, players of the most successful teams, as hypothesized, rated team task cohesion higher than did the players of the medium and less successful teams. The players of the medium successful teams did not perceive cohesion differently from those of the least successful teams. The medium successful teams' players' expectations in comparison with their teams' actual records could be an explanation for these unexpected results. Hence, partial support was found for the first hypothesis.

Within-Group Differences

Hypothesis #2, which predicted that the higher the success of the team, the smaller would be its within-group differences on measures of team task cohesion was examined in two different ways. In both approaches the subjects were divided into two sub-groups, according to their specific characteristics. The first analysis was done using team performances and player ice-time as the classifying characteristics. The within-group difference in a success group was assessed by comparing the difference in cohesion score between the players receiving much ice-time and those getting less ice-time. The second approach to the analysis of within-group differences was to use team success and the player's number of years of experience with the team by classifying each athlete as a veteran or rookie.

Icetime

The hypothesis (#2.1) which stated that the greater the amount of ice-time a player received, the higher he would rate task cohesion, was partially supported. Our results indicate that there was a positive relationship between the cohesion scores of players on ATG-T and the amount of ice-time received. Athletes receiving more ice-time generally rated ATG-T cohesion higher than did those given less ice-time, although this was not found true within any specific success level.

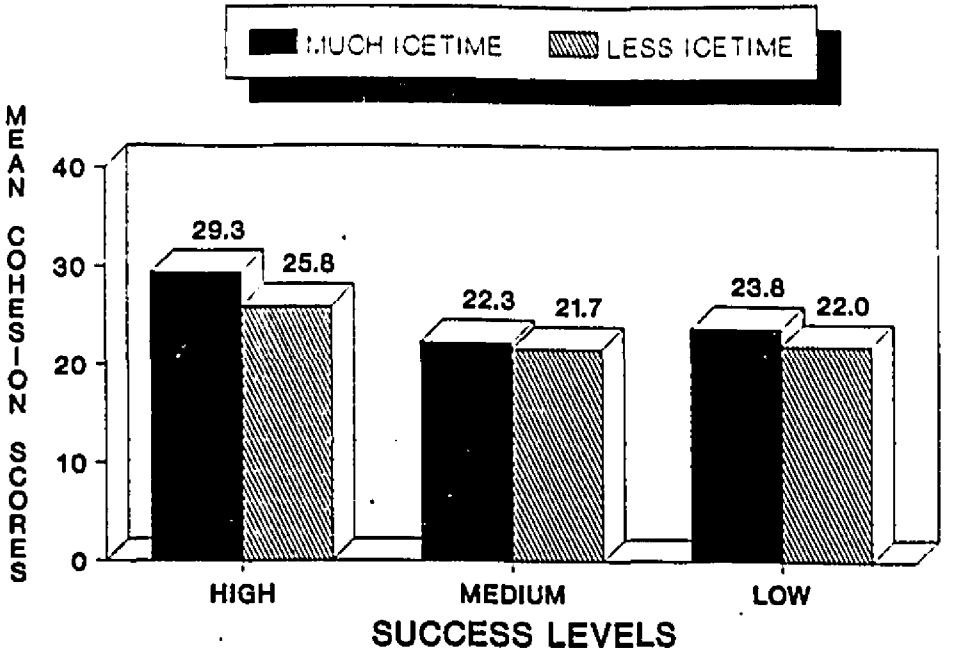

Figure 2: ATG-T cohesion mean scores of much and less icetime groups at different levels of performance success.

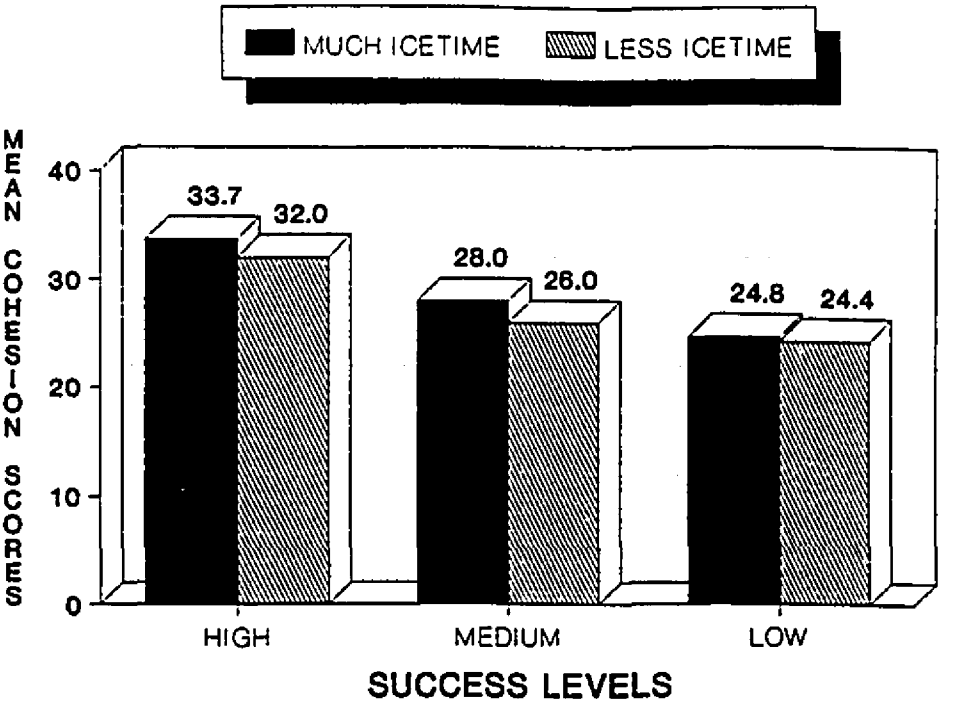

Figure 3: GI-T cohesion mean scores of much and less icetime groups at different levels of performance success.

The players receiving the most ice-time also appear in Figure 3 to have rated their GI-T cohesion higher than the less ice-time athletes, for the high and medium successful groups. This was not, however, supported by the findings of our analysis. While there is an apparent trend, the differences are not statistically significant. These results, then, give partial support to the hypothesis: one measure of cohesion shows support (ATG-T) while the other (GI-T), at best suggests a trend in this direction. These findings are consistent with previous research which found that starters of volleyball teams rated ATG-T, but not GI-T, higher than non-starters (Spink, 1992). Starters of football teams were found different from non-starters on both task scales of the GEQ (ATG-T and GI-T). These results with player usage based on amount of ice-time seem to provide evidence that volleyball and ice hockey are similar in nature of player perception of cohesion. In these types of sports, more skilled players, or at least those who start for their teams or play most, rate ATG-T higher than those who are not starters or play less. The ATG-T scale of the GEQ measures the degree to which an individual feels attracted to the group on a personal basis. The playing or starting status of an athlete can obviously influence that feeling. An athlete who plays often should be more attracted to the group than a player who receives less ice-time. A possible explanation for the GI-T results could be that within interactive sports there may be differences in the nature of player interaction and hence, their perceptions of team cohesion (Spink, 1992). In football, non-starters dress for games, but do

not always play. In hockey or volleyball, players who do not start the game may still be substituted into the game quite frequently. For example, the speed and the intensity at which the game of hockey is played makes it necessary to involve many players of a team in the play to perhaps a larger extent than in other sports. This involvement of every team member could explain the similar perceptions of GI-T cohesion between starters and non-starters in volleyball, and between players given much and less ice-time in hockey.

The hypothesis (#2.1.1) which predicted that the players on the most successful teams would not differ in cohesion perception regardless of the ice-time received was found true for both ATG-T and GI-T. The results showed no significant differences between the much and the less ice-time players of the successful teams. This is consistent with past research which found no significant within-group differences among teammates on successful teams in other sports (Granito and Rainey, 1988; Spink, 1992).

Hypothesis (#2.1.2) which anticipated the medium successful group to have a difference in team task cohesion between the much and the less ice-time players had to be rejected for both task cohesion measures. Post hoc testing failed to find significant differences in cohesion perception relating to playing time at this level of team success. An explanation for the much ice-time group being similar to the less ice-time group in perception of cohesion is that there is a possibility that the differences of amount of ice-time between the two groups was not large. Coaches of medium successful school teams may have had a tendency to give

similar amounts of ice-time to most of their players in order to be "fair". Individuals of similar amounts of ice-time might have then developed similar perceptions of task cohesion.

Hypothesis (# 2.1.3) stated that the players of the least successful teams receiving much ice-time would perceive cohesion higher than the players of the same teams who got less ice-time. The results from the study indicate that there were no within-group differences among the least successful group. The players of much ice-time were not found to rate ATG-T or GI-T significantly higher than the players receiving less ice-time among the low performing teams. Again, as for medium successful teams, coaches of low successful teams may feel inclined to distribute ice-time more equally among the players. The fact that much and less ice-time players of the least successful teams were not found to be significantly different in cohesion peception than the much and less ice-time players of the teams of moderate success would suggest the idea that the coaches could be using the same strategy regarding the ice-time given at these two levels of performance.

Experience with the team

The hypothesis (# 2.2) which predicted that the more experience a player has with a team, the greater would be his perception of team task cohesion was partially supported by our findings. It received support in the results with the GI-T measure, but not ATG-T. Comparisons of rookies and veterans mean scores on ATG-T are displayed in Figure 4.

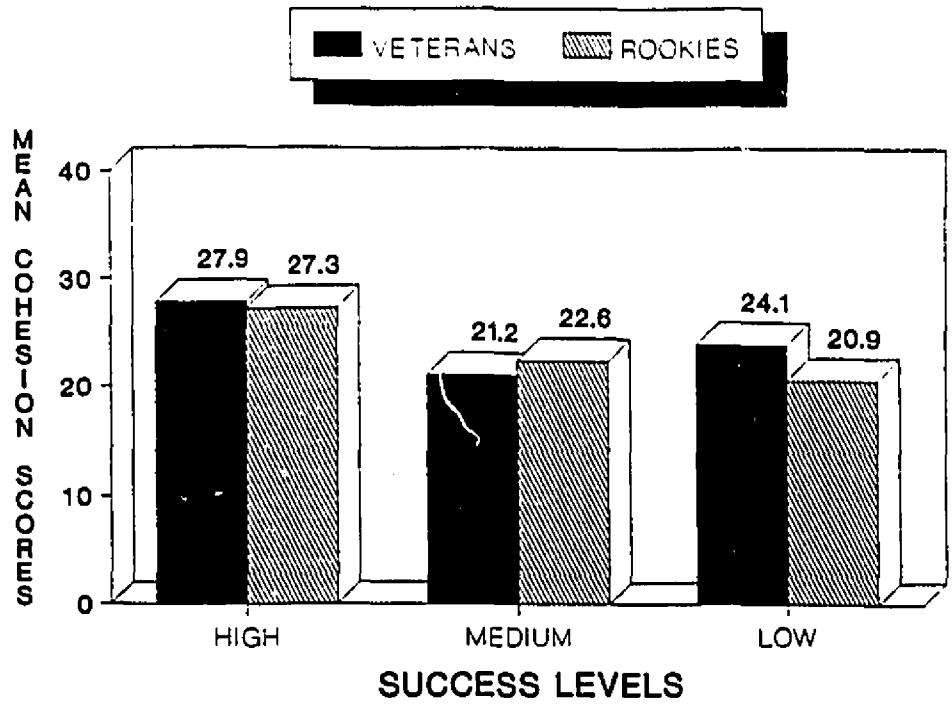

Figure 4: ATG-T cohesion mean scores of veterans and rookies at different levels of performance success.

On the ATG-T measure of the GEQ there were no statistical differences found between veterans and rookies. ATG-T represents the player's appreciation and attractiveness to the team's strategies for success. It attempts to assess a player's individual perception of matters such as satisfaction with provided playing time, team's desire to win, opportunity to improve personal performance and the appreciation of one's team's style of play. All of these are factors which can influence the individual satisfaction and attraction of a player to his group. An individual scoring high on ATG-T should be a person strongly attracted to his team for the reason described above. It appears that the number of years involved with a team did not affect the

individual attraction to the team perception of these college hockey players.

The fact that Cegep teams accept many relatively older individuals into their ranks may in part explain these unexpected results. These older individuals are often former junior hockey players who wish to prepare for entrance to university and still play hockey. They provide the teams with quality, first year players who are given significant playing time, as they are generally more skilled than other rookies. Hence, since these rookies play a preponderant role in the achievement of their group's outcomes (i.e. much playing time), their perceptions of ATG-T cohesion is quite possibly similar to those of many veterans. This may explain finding no differences between rookies and veterans on the ATG-T measure.

Collapsed across all three success groups, the veterans rated GI-T cohesion significantly higher than did the rookies. Contrary to the ATG-T items which ask the player to rate his feeling about issues relating to his personal situation, GI-T items assess the player's perception of the team as a whole. A person high on GI-T feels the team is strongly united, and believes many players feel responsible for good and poor performances, communicate well, have similar goals and help each other when problems arise. Figure 5 shows the comparisons of the means of the veterans and rookies at the three levels of team success.

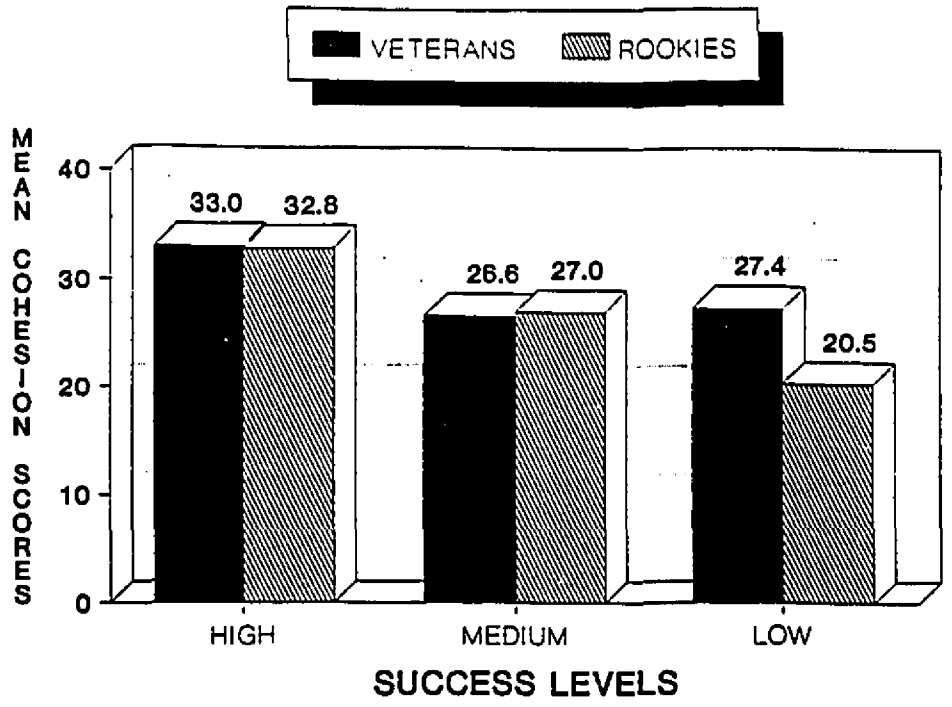

Figure 5: GI-T cohesion mean scores of veterans and rookies at different levels of performance success.

These results with GI-T appear consistent with the idea that veterans as a group perceive cohesion higher than rookies because they are generally more often chosen for leadership roles (Rees and Segal, 1984). Individuals with leadership roles usually have more responsibility for guiding a group to its goals and objectives (i.e. group performance success) than other group members. Accordingly, athletes involved in the leadership of sport teams have been found to have the highest perceptions of cohesion in a group (Carron and Chelladurai, 1981). It could be

suggested, in light of this, that veterans would be more inclined to perceive GI-T cohesion higher than rookies. The rationale behind this is that players who have been with the team longer would feel more responsible for the team and hence more involved in the situations depicted by the GI-T items. Accordingly, veterans would, as a whole, rate cohesion higher as a result of their responsibiltiy towards the team in general.

The next prediction (hypothesis #2.2.1) involved the veterans and rookies of the most successful group, and anticipated that they would not differ significantly one from the other on their perceptions of task cohesion. The results supported this hypothesis. Veterans did not rate ATG-T or GI-T cohesion stastistically differently from the rookies among the high success group. This is consistent with past research findings, which found successful teams to have small within-group differences in cohesion perception (Spink, 1992).

The hypothesis (#2.2.2) which stated that veterans of the medium successful group would score team task cohesion higher than rookies of the same group was not supported. The veterans did not score ATG-T or GI-T cohesion significantly different from the rookies within the teams which had medium success records. This is both contrary to expectations and perplexing. As with amount of ice-time, both subgroups at this success level rated task cohesion considerably lower than the most successful teams, yet their average assessment of cohesion was not significantly higher than that of the least success group. It is possible that the fact that task cohesion of these medium success teams was

significantly lower than hypothesized was the cause of these unanticipated results. It could be that this low level of cohesiveness may have affected the within-group difference of these teams in a way that was not predicted. In any case, rookies and veterans did not differ significantly in their perceptions of cohesion of ATG-T and GI-T among these medium success level teams.

The last hypothesis (#2.2.3) stated that the veterans of the least successful teams would perceive cohesion higher than the rookies of the same group. Partial support was found for this hypothesis. The results from the least successful group for ATG-T cohesion (Figure 4) seem to show veterans rating cohesion higher than rookies. Despite showing the anticipated trend, the veterans were not found significantly different from the rookies in the ATG-T measure of cohesion among the least successful teams. It is possible that both veterans and rookies were similar in their levels of attraction to and satisfaction with their teams. Equality of playing time, opportunities for improvement, liking the style of play and motivation of the team can understandably be alike and low on a less achieving team.

Figure 5 suggests that the GI-T findings did support the hypothesis. In fact, the veterans of the least successful teams were found to rate cohesion significantly higher than the rookies of the same group. These findings were expected since Spink (1992) had found within-group differences among the least successful volleyball teams. Granito and Rainey (1988) had also found these within-group perception differences in both task

scales of the GEQ among players of a non-successful college football team. These results are consistent with the idea that veterans of less successful teams justify their greater playing experience and continuation with their teams, by rating cohesion high, despite their teams' losing records. It could be argued that veterans differed from rookies only on GI-T because only that task scale measures the impact of player experience. The GI-T items speak of team unity, player responsibility for losing, aspiration differences between members, cooperation and player communication. These are task situations commonly encountered during team activities. These considerations may be of more concern to veterans than rookies. An athlete with more playing experience is expected to influence and impact on these situations to a greater extent. Also, veteran athletes have a greater likelyhood of being chosen for leadership roles (Rees and Segal, 1984) and leaders have direct responsibility for the unity of the team as a whole, which is the general issue addressed by the GI-T construct. It could therefore be assumed that veteran players are more inclined to rate GI-T cohesion higher than rookies, since they are more personnally involved in these team unity matters.

In summary, experience with the team did not influence significantly players' perceptions of ATG-T cohesion. Veterans and rookies generally rated this dimension of cohesion similarly. Within-group differences were not found with ATG-T cohesion among any of the success groups, although the least successful teams showed a trend in the anticipated direction. It was suggested

that the fact that ATG-T may assess factors which do not associate particularly with individuals of different playing experience may explain the lack of real differences between veterans and rookies found within teams at any success level. On the other hand, perceptions of GI-T cohesion were moderated by experience with the team, veterans rating GI-T cohesion statistically differently than rookies. However, most and medium successful teams did not reveal any within-group differences. It was anticipated that the highly successful teams would not show differences between veterans and rookies, but that medium success teams would. There were no clear indications as to why these results were found, but the fact the overall task cohesion score of the moderate success group on GI-T was lower than expected and not significantly different from that of the least successful group may in part explain these findings. Finally, as predicted, the least successful teams were found to have significant within-group differences between veterans and rookies on the GI-T cohesion measure. Veterans' increased feeling of responsibility for team unity matters has been proposed to explain the significant within-group differences found with GI-T cohesion.

Summary of Results and Discussion

Hypothesis #1 of this study stated that group task cohesion would increase as group success increased. Results revealed that the highly successful group was significantly higher on ATG-T and GI-T cohesion than the medium and low success groups. The medium success group was not found different on either scale of the

GEQ from the low performing teams. Higher expectations of their teams than their actual records may have influenced the medium successful team members perceiving lower than anticipated task cohesion. This hypothesis was partially supported.

Hypothesis #2 stated that the within-group differences would decrease as the success of the group increased. There were no significant differences found between the much and less ice-time players within any of the three levels of success for ATG-T, nor for GI-T. Therefore, there were no significant differences detected within any of the success groups, when ice-time received was used as sub-groups for comparisons. Although these findings were expected within the most successful teams, they were not anticipated for the medium and least successful groups. It may be that the amounts of ice-time received by the much and less ice-time players were not different enough in magnitude. Coaches of the medium and least successful teams, in an attempt to be fair, may have given similar amounts of ice-time to most of their players. Hockey players of resembling amounts of ice-time may have very closely related perceptions of both task cohesion measures (ATG-T and GI-T).

When using experience with the team as the means of dividing into subgroups, the high, medium and least successful group had no significant within-group differences on perceptions of ATG-T cohesion (subhypothesis 2.2.1 , 2.2.2 and 2.2.3). With GI-T, high and medium successful group were found to have no within-group differences among them, but the low success group was found to have a significant difference between rookies and veterans

within it (subhypothesis 2.2.3.). Highly successful teams, had been expected to have no differences among them based on team experience on either task cohesion measure. Medium and low successful teams were expected to show differences. The medium successful teams had surprisingly low overall cohesion scores on both measures (see hypothesis # 1). These low cohesion scores of the medium success teams may in part at least, explain the lack of differences between rookies and veterans on these teams. On the low success teams, ATG-T did not reveal any differences, but GI-T did find the veterans significantly different from the rookies. It was suggested that GI-T measures a dimension of cohesion (group interactions as a unit) that relates closer to issues which veteran players of hockey teams would feel more responsible for and have more influence upon. Issues like the unity of the team, the cooperation between teammates, and a personal responsibility for team losses. ATG-T, on the other hand, would assess matters that affect individuals on a more personal level, such as individual playing time, personal opportunities to improve, and self-appreciation of the team's style of play. These matters may not be affected by the experience of the athlete with a team. Hence, the hypothesis which predicted that within-group differences would be smaller as the performance success increased was partially supported.

The objective of this study was to examine the effect of team success on within-group differences on perception of team task cohesion. The performance success of a group was generally found to be related to the level of cohesion perception of team

members. High performance success was found to be linked to high levels of ATG-T and GI-T cohesion measures. Moderate and low levels of performance success were found related to low levels of ATG-T and GI-T cohesion perception among team members.

As expected, players of the highly successful teams were found to have no significant differences of opinion about their teams' level of cohesiveness, on either measure of task cohesion. This was true whether amount of ice-time or experience with the team was used to divide the teams into subgroups. Contrary to expectations, success was not found related to within-group differences of ice-time or experience with the team among the medium successful teams on either task scale of the GEQ. The least successful teams provided mixed results. When amount of ice-time was used to compare subgroups, no within-group differences in cohesion perception appeared in either cohesion measure. Analyses of cohesion perceptions of players of different experience with the team showed no differences in ATG-T, but found divergences of opinion on GI-T cohesion among the players of the least successful teams.

In conclusion, partial support was found for the statements which predicted that team success would be affiliated with the degree of within-group differences in task cohesion among college ice hockey teams.

CHAPTER VI
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Cohesion is a property of groups that is esssential to the survival of an ensemble of individuals who must work together. More precisely, it is the characteristic of a collectivity to stay jointed towards achieving a common purpose (Carron, 1982). The general procedure of numerous studies in group dynamics has been to observe the cohesion-group performance relationship. Group cohesion is thought to be related to group effectiveness, but the facts of that relationship remain ambiguous.

The construct of group cohesion, although defined as a multidimensional construct, has been measured unidimensionnally for quite some time. The strength of the interpersonal relationships among the group members has been widely used to assess a group's cohesiveness. Unfortunately, personal bonding between individuals of a group represent only one aspect of group cohesion. According to Carron et al. (1985), a proper assessment of group cohesion must consider four aspects of cohesiveness: (1) The group closeness and unity as a whole. (2) The individual attraction to the group, which includes the motives influencing the member to stay in the group. (3) The task aspect, referring to the motivation of the individuals to achieve the group's objectives. (4) The social aspect, which deals with the motives of the group members to develop and maintain interpersonal relationships. Since the late 1980's, the Group Environment Questionnaire has been used to investigate group cohesion of teams from different sports, in various settings. Although some

research has centered its attention on the group cohesion-performance success relationship of sport teams, no attempts have been found with the GEQ to study this relationship among ice hockey teams. The recent trend has been to study the differences in perception of cohesion that may exist within a group. Within-group differences have been found to be related to performance success of different sport teams. Therefore, the purpose of this study was to investigate the relationship of team performance success to within-group differences in group cohesion among college hockey players.

Summary of Procedures

Ten of the thirteen Quebec College Hockey League teams participated in the study. One hundred and seventy-one athletes completed a questionnaire consisting of questions asking how many years they had played with their current team, how much ice-time they got in an average game and the task oriented components of the Group Environment Questionnaire (Carron et al., 1985). First year players were considered rookies. Players of second season or more were called veterans. The subjects were divided into the much or less ice-time groups based on their responses in that regard. For each subject, two cohesion scores were calculated. A score for the Attraction to Group-Task (ATG-T) scale, and a score for the Group Integration-Task (GI-T) scale. Each team was also assigned to a success group, according to its performance average in league play at the time of data collection. The teams which held a performance average of .800 or more were labeled

highly successful. The teams with an average between .600 and .500 were categorized as medium successful. Teams of below .500 were considered as low success teams. Two 3 x 2 (success by amount of ice-time) analyses of variance were conducted, one with ATG-T data and another with that on GI-T. The obtaining of significant main effects was followed by post hoc comparisons using Tukey's method for testing pairwise differences. Two 3 x 2 (success by experience with their team) two-way analysis of variance were also computed, one with each measure of cohesion (ATG-T and GI-T). Again, pairwise comparisons procedures were followed according to Tukey's method when significant main effects were found.

Summary of Results and Discussion

The first hypothesis proposed that the higher the success of the group, the greater would be its players' perceptions of team task cohesion. The results partially supported this prediction. Players of the highly successful teams rated cohesion higher than did the players of the medium or low success teams. On the other hand, medium success teams did not show task cohesion scores significantly different from those of the least successful teams. It was suggested that the players of the medium success teams may have been disappointed in their teams' successes, despite their .500 or better winning records and that this dissatisfaction may have resulted in their lower than expected cohesion scores. The results were consistent for both cohesion measures used.

The second hypothesis anticipated that the greater the success a team experienced, the smaller would be the within-group differences in task cohesion perception. The results were threefold: (1) As expected, the players of the highly successful teams showed no differences in cohesion perceptions among themselves, either by ice-time received or by years with the team. (2) Contrary to expectations, players of medium successful teams did not display cohesion perception differences among them based on ice-time received or experience with the team. It has been suggested that lower than expected team task cohesion may have affected within-group differences in a way that was not anticipated. (3) The players of the least successful teams, had differences of opinion about their group cohesion on one cohesion measure, only when the comparisons were made between players of different numbers of years of experience with the team. It has been suggested that these results may have been obtained because the veterans feel more involved and responsible than rookies for cohesion which deals with team unity (GI-T).

Conclusions

Based on the findings and within the confines and limitations of the present study, the following conclusions seem warranted:

1. Players of highly successful sport teams may be expected to perceive task cohesion higher than participants of less successful teams.

2. Players of medium and low success teams appear not to differ significantly in their perceptions of task cohesion.

3. Players of highly and moderately successful college hockey teams show no differences in task cohesion perceptions based on ice-time received and years with the team.

4. First year players of low success college ice hockey teams perceive Group Integration-Task (GI-T) cohesion lower than players of same teams in their second or more years with those groups.

5. The degree of success a team has at its task would seem to be a key factor in determining whether or not there are significant differences in task cohesion perceptions within a group.

Implications of the Research

The findings of this study provide some insight into the relationship of cohesion to performance in ice hockey teams. Understanding of that relationship may be of help to any ice hockey coach. According to the present findings, successful ice hockey teams should not have task cohesion problems. Players of highly successful teams generally perceive their teams' task cohesiveness to be high.

Players of moderately successful teams appear to sense task cohesiveness to be as low as felt in the least successful teams.

Despite the relatively low cohesion perception among players on these teams, there are not necessarily systematic differences among players in their task cohesion. Improving task cohesiveness could be a positive step towards the achievement of greater performance success. The results of this study add support to the idea that there exists a relationship between group cohesion and performance success of athletic teams.

Recommendations for Further Research

Recommendations for further research include:

1. Further examine possible within-group differences in cohesion of ice hockey teams, using within-group differences other than ice-time and experience with the team (ex.: forwards vs. defense; french vs. english).

2. Conduct another study using three levels of team success, to increase our knowledge of the medium success teams. The findings of this study did not provide all the results anticipated.

3. Conduct similar studies with hockey players of age groups, older and younger than the respondents in this present study.

4. Conduct a similar study using the social scales of the Group Environment Questionnaire in an attempt to explain further the present findings at the

various success levels. Not present at the task level, it may be that the cohesion differences between the medium and low success teams exists at the social level.

5. Replicate this study

(A) with girls as subjects, to see if the findings can be generalized.

(b) with professional hockey players as subjects, to determine if the findings apply to all athletes, amateur and professional.

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APPENDIX A

HOCKEY PLAYER PERCEPTION QUESTIONNAIRE

Dear player,

I would appreciate your participation with the following survey, which is a vital part of a research project undertaken by myself, Martin Raymond, a student, and Dr. Graham Neil, my faculty advisor from the department of Physical Education at McGill University.

The purpose of this research is to investigate the effect of team success on group cohesion perception of hockey players.

You are asked to fill out the accompanying short Hockey Player Perception Questionnaire (10 to 15 minutes), which asks questions about how you feel about various aspects of your team, and the ice-time you were given this season.

All information you provide will be strictly confidential.

If you agree to participate in the survey, please complete and return this consent form with your questionnaire.

Thank you for your cooperation.

Yours truly,

Martin Raymond
Research Investigator

Graham Neil, Ph.D.
Faculty Advisor

PARTICIPANT CONSENT FORM

I_____ agree to participate in the

study concerning the group cohesion of hockey players, conducted by Martin Raymond, a McGill University student with Dr. Graham Neil, faculty advisor.

I understand that I am asked to fill out a questionnaire that will require about 10 to 15 minutes to complete.

I understand that all information will be held confidential and that I may withdraw my participation, in this research project, at any time.

SIGNATURE :_____ DATE :_____

This questionnaire is designed to assess your perceptions of your hockey team. There are no right or wrong answers so give your immediate reaction. Some of the questions may seem repetitive but please answer all questions. Your candid responses are very important to us.

Your responses will be kept in strictest confidence (neither your coach nor anyone other than the researcher will see your responses). You have been asked to indicate your name only in the event that I need to match two pieces of information on each player.

SECTION A

Team : _____

Sweater number:_____

Number of seasons played with this team: 1 2 3 4 5 (circle)

SECTION B

1) PLAYERS, please circle the situation which most resembles yours.

DURING A GAME...

A) On average, I get on a regular shift, maybe sometimes more, as well as playing often on the power-play and/or penalty-killing. The coach also uses me often in important situations at the end of a period or of a game, when the team needs a goal (offensive mission) or to prevent the opponents from scoring (defensive mission).

B) On average, I get a regular shift, and sometimes I also play on the power-play and/or penalty-killing, and/or I sometimes play in important offensive or defensive missions.

C) On average, I get less than a regular shift, and/or I seldom play on the power-play or penalty-killing, and/or I don't get dressed for certain games.

2) GOALIES, please circle the situation which most resembles yours.

A) On average, I play most of the time.

B) On average, I play half the time.

C) On average, I play less than half the time.

SECTION C

The following questions are designed to assess your feelings about your personal involvement with this team. Please CIRCLE a number from 1 to 9 to indicate your level of agreement with each of the statements.

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

1 2 3 4 5 6 7 8 9

STRONGLY DISAGREE STRONGLY AGREE

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

1 2 3 4 5 6 7 8 9

STRONGLY DISAGREE STRONGLY AGREE

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

1 2 3 4 5 6 7 8 9

STRONGLY DISAGREE STRONGLY AGREE

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

1 2 3 4 5 6 7 8 9

STRONGLY DISAGREE STRONGLY AGREE

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

1 2 3 4 5 6 7 8 9

STRONGLY DISAGREE STRONGLY AGREE

6. We all take responsability for any loss or poor performance by our team.

1 2 3 4 5 6 7 8 9

STRONGLY DISAGREE STRONGLY AGREE

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

1 2 3 4 5 6 7 8 9

STRONGLY DISAGREE STRONGLY AGREE

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

1 2 3 4 5 6 7 8 9

STRONGLY DISAGREE STRONGLY AGREE

9. Our team members do not communicate freely about each athlete's responsabilities during competition.

1 2 3 4 5 6 7 8 9

STRONGLY DISAGREE STRONGLY AGREE

ThankYou

APPENDIX B

QUESTIONNAIRE SUR LA PERCEPTION DES JOUEURS DE HOCKEY

Ce questionnaire a été conçue pour évaluer vos perceptions à propos de votre équipe de hockey. Il n'y a pas de bonnes ou de mauvaises réponses, vous êtes donc prié d'inscrire votre réaction immédiate. Quelques questions semblent se répéter, mais veuillez répondre à toutes les questions. Vos réponses honnêtes seront d'un précieux secours.

Vos réponses seront gardées en stricte confidentialité. Ni votre entraîneur ni personne d'autre que l'expérimentateur ne sera mis au courant de vos réponses.

SECTION A

EQUIPE: _____

Numéro de chandail:_____

Nombre de saison avec cette équipe: 1 2 3 4 5 (encerclez)

SECTION B

1. Si vous êtes un **joueur** (défenseur ou attaquant), veuillez s.v.p. encercler la situation qui vous caractérise le mieux.

A) Je joue en moyenne, à mon tour régulier, peut-être plus parfois, en plus de jouer souvent sur les avantages et/ou les désavantages numériques. L'entraîneur me fait également souvent confiance dans des situations importantes en fin de période ou de match, lorsque l'équipe a besoin d'un but (mission offensive) ou pour empêcher l'adversaire d'en marquer un (mission défensive).

B) Je joue en moyenne, à mon tour régulier, et parfois je joue aussi sur les avantages et/ou désavantages numériques, et/ou je joue parfois des missions offensives ou défensives importantes.

C) Je joue en moyenne moins souvent qu'à mon tour régulier, et/ou je joue rarement sur les avantages ou désavantages numériques, et/ou je ne m'habille pas pour certains matchs.

2. Si vous êtes un **gardien**, choisissez la situation ci-dessous qui vous caractérise le mieux.

A) En moyenne, je joue la plupart du temps.

B) En moyenne, je joue la moitié du temps.

C) En moyenne, je joue moins que la moitié du temps.

SECTION C

Pour chaque question, veuillez encerclé un chiffre de 1 à 9 pour indiquer à quel niveau vous êtes d'accord avec l'énoncé.

1. Je ne suis pas heureux du temps de glace que je reçois.

1	2	3	4	5	6	7	8	9
FORTEMENT EN DESACCORD								FORTEMENT EN ACCORD

2. Je ne suis pas heureux du désir de vaincre de cette équipe.

1	2	3	4	5	6	7	8	9
FORTEMENT EN DESACCORD								FORTEMENT EN ACCORD

3. Cette équipe ne me donne pas suffisamment d'opportunités d'améliorer mes performances personnelles.

1	2	3	4	5	6	7	8	9
FORTEMENT EN DESACCORD								FORTEMENT EN ACCORD

4. Je n'aime pas le style de jeu de cette équipe.

1	2	3	4	5	6	7	8	9
FORTEMENT EN DESACCORD								FORTEMENT EN ACCORD

5. Notre équipe est uni tout en essayant d'atteindre ses objectifs de performance.

1	2	3	4	5	6	7	8	9
FORTEMENT EN DESACCORD								FORTEMENT EN ACCORD

6. Nous prenons tous la responsabilité pour toute défaite ou mauvaise performance de notre équipe.

1	2	3	4	5	6	7	8	9
FORTEMENT EN DESACCORD								FORTEMENT EN ACCORD

7. Les membres de notre équipe ont des aspirations contradictoires à propos des performances de l'équipe.

1	2	3	4	5	6	7	8	9
FORTEMENT EN DESACCORD								FORTEMENT EN ACCORD

8. Si les membres de notre équipe ont des problèmes dans le jeu, tout le monde veut les aider pour que nous puissions revenir encore ensemble.

1	2	3	4	5	6	7	8	9
FORTEMENT EN DESACCORD								FORTEMENT EN ACCORD

9. Les membres de notre équipe ne communique pas librement à propos des responsabilités de chaque athlète durant les compétitions ou les entraînements.

1	2	3	4	5	6	7	8	9
FORTEMENT EN DESACCORD								FORTEMENT EN ACCORD

APPENDIX C

COACH'S EVALUATION OF ICETIME

Dear coach,

I would appreciate your participation with the following survey. The purpose of this research is to investigate the effect of team success, amount of ice-time and experience on group cohesion perception of hockey players. For this, I need you to rate the amount of ice-time each of your players was given on average during games this year. Please check in the box under A, B or C corresponding to the amount of ice-time given to each of your players this season. Please identify your players by their sweater numbers only.

FOR YOUR FORWARDS AND DEFENSE :

Give an A to your player if:

> On average, he got on a regular shift, maybe sometimes more,as well as playing often on the power-play and/or penalty-killing. You also used him often in important situations at the end of a period or of a game, when the team needed a goal (offensive mission) or to prevent the opponents from scoring (defensive mission).

Give a B to your player if:

> On average, he got a regular shift, and sometimes he also played on the power-play and/or penalty-killing, and/or he sometimes played in important offensive or defensive missions.

Give a C to your player if:

> On average, he got less than a regular shift, and/or he seldom played on the power-play or penalty-killing, and/or he didn't get dressed for certain games.

FOR YOUR GOALIES

Give an A to your goalie if:

> On average, he played most of the time.

a B if:

> On average, he played half the time.

a C if:

> On average, he played less than half the time.

Please keep in mind that all the information you will provide will be strictly confidential, and will in no way be used by the investigator for any purpose other than the completion of this piece of research.

I,_____, agree to participate in the study concerning the group cohesion of hockey players, conducted by Martin Raymond, and Dr. Graham Neil, faculty advisor.

I understand that all information will be held confidential and that I may withdraw my participation, in this research project, at any time.

SIGNATURE :_____ DATE :_____

Please check the appropriate box for each player

Sweater number	Box	A	B	C

Thank you for your cooperation.

Yours truly,

Martin Raymond

Research Ethics Committee of
The Faculty of Education

Statement of Ethics of Proposed Research in the Faculty of Education

It is assumed that the responses to the questions below reflect the author's (or authors') familiarity with the ethical guidelines for research with human subjects that have been adopted by the Faculty of Education.

1. **Informed Consent of Subjects**

Explain how you propose to seek informed consent from each of your subjects (or should they be minors, from their parents or guardian). Informed consent includes comprehension of the nature, procedures, purposes, risks, and benefits of the research in which subjects are participating. Please append to this statement a copy of the consent form that you intend to use.

2. Subject Recruitment

2.1 Are the subjects a "captive population" (e.g., residents of a rehabilitation centre, students in a class, inmates in a penal establishment)?

Yes, they are players and coaches of Cegep hockey teams who play in the Quebec Cegep Major Hockey League.

2.2 Explain how institutional or social pressures will not be applied to encourage participation.

It will be clearly indicated that participation in this study will be on a voluntary basis and that subjects will be allowed to withdraw from the study at any time.

2.3 What is the nature of the inducement you intend to present to prospective subjects to persuade them to participate in your study?

The results of the present investigation will help coaches of the future to better

understand the hockey teams and the players who make them.

2.4 How will you help prospective participants understand that they may freely withdraw from the study at their own discretion and for any reason?

Each subject will have to fill in and sign a consent form, which will specify that participants may withdraw from the study at any time, of their own initiative.

3. Subject Risk and Wellbeing

What assurance can you provide this committee (as well as the subjects) that the risks, physical and/or psychological, that are inherent to this study are either minimal or fully justifiable given the benefits that these same subjects can reasonably expect to receive?

The psychological risks to the participants of this study will be minimal, since all that is required from the subjects is to honestly rate the cohesion of their team and the amount of ice-time they receive. The answers will not be associated with the name of the subject.

4. Deception of Subjects

4.1 Will the research design necessitate any deception to the subjects?

No

4.2 If so, what assurance can you provide this committee that no alternative methodology is adequate?

4.3 If deception is used, how do you intend to nullify any negative consequences of the deception?

5. Privacy of Subjects

How will this study respect the subjects' right to privacy, that is, their right to refuse you access to any information which falls within the private domain?

No subject will be compelled to answer the questionnaire. Questionnaire items touch minimally the private domain. Subjects will be identified by sweater number only for purposes of comparing coaches' and players' perceptions of ice-time each player was given during the season.

6. Confidentiality/Anonymity

6.1 How will this study ensure that (a) the identity of the subjects will be concealed and (b) the confidentiality of the information which they will furnish to the researchers or their surrogates will be safeguarded?

As noted in #5 above, subjects'names will not be used or recorded and data from the teams will not be identified by team name. Report of the findings will be for the league as a whole. Data from the study will not be released for other purposes without the expressed consent of all respondents.

6.2 Further, will the data be aggregated in such a way that even should the identity of the participants become known, no reasonable inference could be made about the performance, competence, or character of any one of these participants?

No

Signature of researcher: Martha Raymond

If this project has been submitted to another ethics committee, please note the particulars:

_____

_____